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Maya Work with ZBrush to model a manga cybergirl

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Blutsbrueder on its vision of the future

Plus: Kieron Helsdon on the film industry, Danny Boyle and VFX on location

Reviews: DAZ Carrara 7 • e-on Vue 7 Infinite • Autodesk ImageModeler

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World-leading artists reveal the secrets behind their work – step by step

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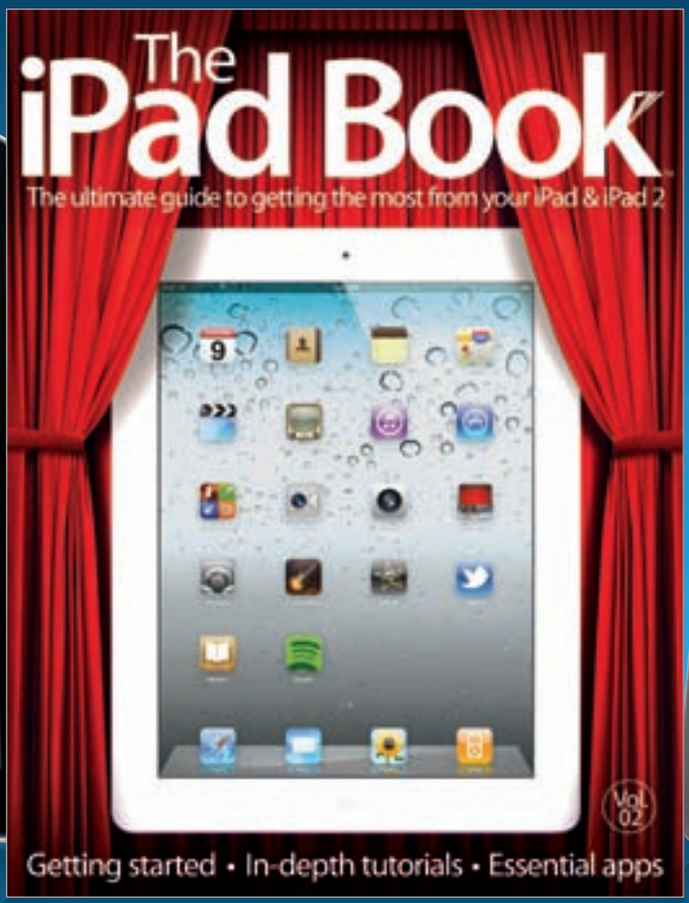
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Artist info

Soa Lee

3DArtistonline
Username soanala

Personal portfolio site
www.soanala.com

Country Korea

Software used 3ds Max, Photoshop, V-Ray

Cover artist

The quality of Soa's work is a thing of beauty, and we were delighted to have her as our very first cover star. We thought this image had it all – eye contact, good composition, flawless finish – we could go on and on and on and on!

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Welcome

to the first issue of a new magazine for 3D artists

Every issue you can count on...

1. **116 pages of creative inspiration**
2. Behind-the-scenes guides to images and artwork
3. **A CD packed full of creative goodness**
4. Interviews with inspirational artists
5. **Tips for studying 3D or getting work in the industry**
6. The chance to see your art in the mag!

Welcome to the world of 3D Artist. Each issue we'll feature jaw-dropping artwork and explain how it was made, we'll go behind the scenes with industry professionals, interview experts in their field and give you the lowdown on exciting developments in the world of 3D. We aim to inspire and inform in equal measure, so if you want to know which course to go on, what university to attend or what software to master, you'll find it all here. At the heart of 3D Artist, though, is the community spirit that runs so strongly through the 3D universe. So don't forget to sign up to the website and we'll see you again next month.

Duncan Evans, Editor

This issue's team of expert artists...

Mark Bremmer

Whether it's probing the Dutch open source gang or explaining the intricacies of Carrara, Mark is your man

Plamen Iliev

I don't know what they feed 3D artists in Bulgaria, but Plamen has more talent than we have hot pies, and we have a lot of pies!

Jack Zhang

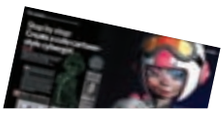
Jack is a character modeller for EA in Canada, and this expertise comes through in his *Mighty Two Kings* tutorial

Lance Hitchings

Lance runs a design studio stateside, and is also the man behind this issue's epic *Tot Rod* step-by-step guide

Yuriy Mazurchuk

We call it the Table and Chairs tutorial. You can call it the most incredible piece of interior artwork you've ever seen



Lee Davies

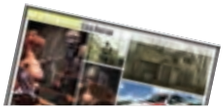
Lee is employed as a character modeller for a Dublin-based agency. He is also the fastest 3D artist we've ever met

April Madden

April is technical editor on **Corel Painter Magazine** and a graphic artist. We gave her a pile of books to review

Julie Easton

Foraging through the dustbins of the industry in search of news, it's Julie, deputy editor of **Advanced Photoshop**

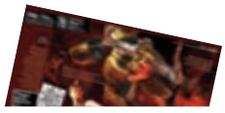


Rosie Tanner

Editor of **Photoshop Creative**, Rosie has put together our education course feature and gallery this issue

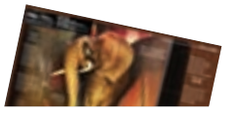
Carlos Fueyo

Giving the lowdown on the 1930s Miami waterfront, Carlos runs architectural visualisation company Insomnia



Mike Wilson

Mike is a graphics designer working in Utah, USA. When he's not creating large-scale prints, he's busy rendering



Thomas Haas-Christensen

A fan of Maya and Mudbox, Thomas explains how he got an elephant to stand on a ball and look sad. No, really!

Sign up, share your art and chat to other artists at www.3dartistonline.com

3DArtist

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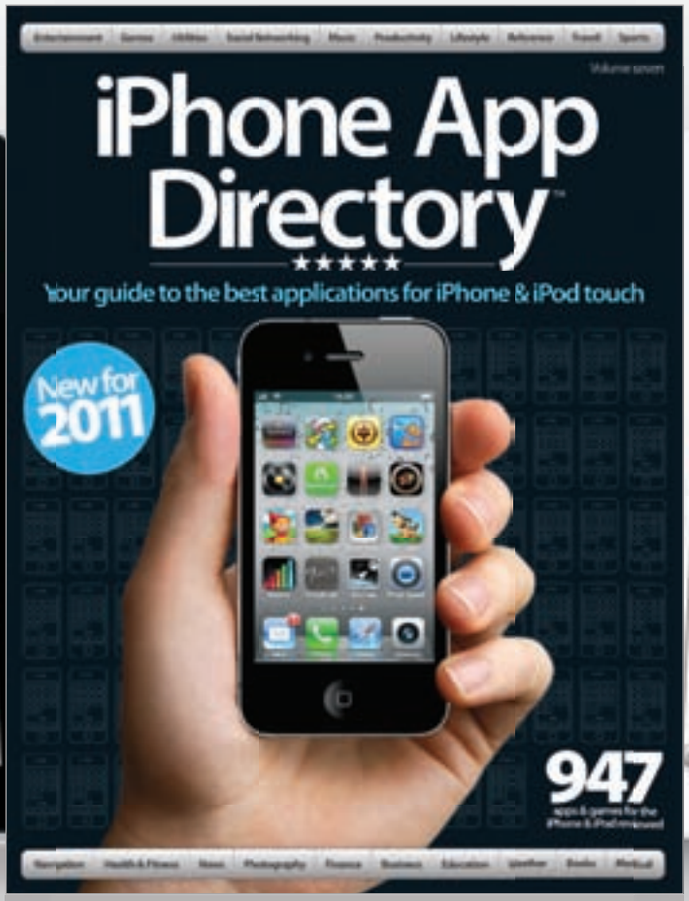

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Discover how these images were created...

44 Create a sci-fi character in 3ds Max & ZBrush

"The scene was rendered in mental ray, with the use of a few unlocked features that I consider the hidden gems of this fantastic rendering engine."

Six-page guide behind the scenes of the creation of this image
Plus: Object file on the disc

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“Although I didn't keep track of my time, I estimate it took between 300 and 350 hours over almost a year”

Lance Hitchings gives an insight into the dedication behind *Tot Rod*. **Page 58**

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Video tutorial: Sculpting in ZBrush

Direct from the video lab at Gnomon, there's a crash course in ZBrush sculpting on the CD

Plus software, models and resources **worth over £450**

Turn to page 110 for the complete disc contents

On the Disc

Free: Carrara Pro 6

Worth £384! Turn to page 110 for more info

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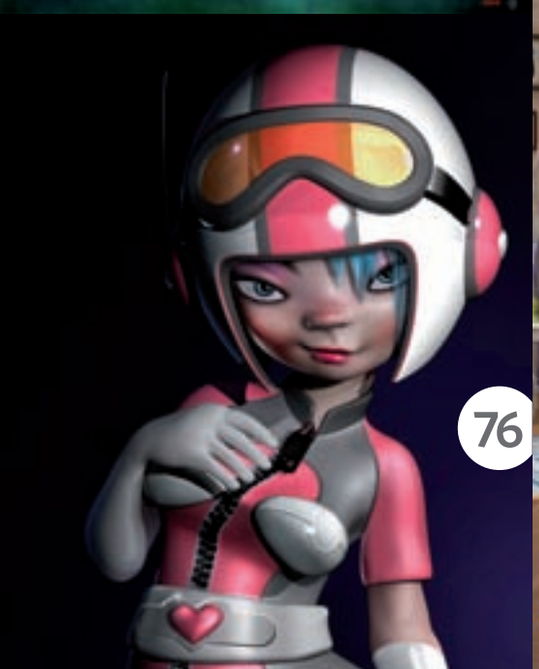

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Check out the details in this poignant yet entertaining image

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Lance spent a year making the charming TotRod image

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Learn how this incredible finely detailed interior was created

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See what Mike had in mind with this classic story retelling

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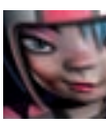

Continued overleaf

There's even more inside...

Turn the page to discover the interviews, reviews, industry advice and more that we've packed into this issue...

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Share your art, comment on other artists' images

"We love to create scenes that take place in the near future. For me, it's a great way to live my passion for product design"

Franz Steiner reveals the motivation behind Blutsbrueder. **Page 26**

workspace 3D

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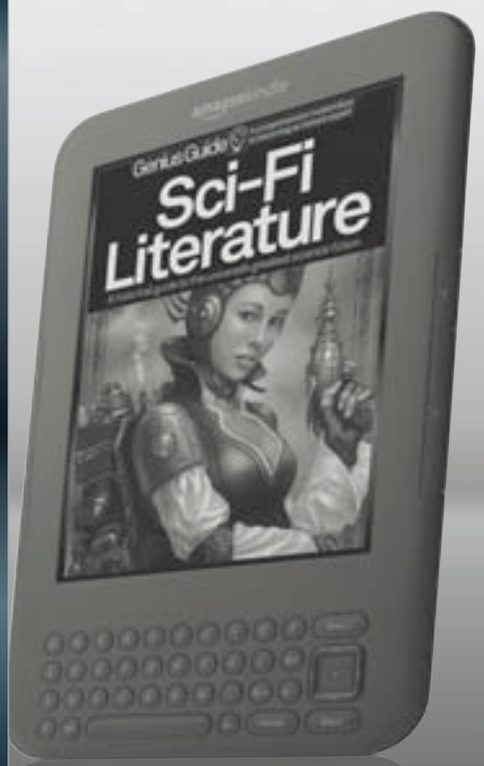

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WELCOME TO THE GALLERY

Ten pages of the greatest artwork from the 3D community *Images we love!*

"I have always thought of this car as a creature and not a structure of metal, therefore I decided to design it as such for use in TV promotion. I used Maya, mental ray and Photoshop for composite and colour correction to produce this final image"

Haider T. Najeeb *F1*, 2008

Artist info

Haider T. Najeeb

Personal portfolio site http://htn.cgsociety.org/gallery/

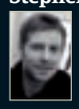
Country United Arab Emirates

Software used Maya, mental ray and Photoshop

Featured artists

Jose M Lazaro
Jose's rendition of actor Morgan Freeman dropped our jaws when we first saw it...

Ertug Yenidemir
An incredible cityscape from Ertug with an HDR-style lighting finish as well



Stephen Molyneaux
Check out the distressed sofa and the superb character detail in the figure

Soa Lee
An amazingly detailed image from Soa, who also provides this issue's cover

Eugene Dranov
Down in the canyon, strange life forms hurry here and there – superbly realised

Max Wahyudi
Max's homage to tragic Heath Ledger in his final, and compelling, role as the Joker

John Hayes
It's a sexy witch sat on a pumpkin. What more could you ask for in a rendered image?

Radoslav Zilinsky
Get your spyglass out and enjoy al lthe intricate detail in this fantasy scene

Get your artwork featured in these pages

Simply send it to the 3D Artist Gallery. Here's how...

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3. Tell us about them!

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Email or post

You'll be missing out on a thriving 3D community, but if you'd rather submit your work by email or post, here's how. Make sure your image is at least 3,000 pixels on the longest side, save it as a maximum quality JPEG or zip it up as a TIFF and email it to the address below. Please include your contact details! If you've created a Pixar-beating animation and want to see that featured on the cover CD, then save it onto a CD and post it to us. You can also send your images on CD. The addresses are:

duncan.evans@imagine-publishing.co.uk

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Comment on more great 3D art...

Head straight over to **www.3dartistonline.com**, register and you can leave comments for other artists. Some of the people featured here already have their galleries, so get online and join our club!

Create your gallery today: www.3dartistonline.com

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The team Loves

“There’s so much that makes this piece jaw-dropping; it’s the textures, the film grain, the depth of field and, above all, the perfect capture of Freeman’s expression and presence. It would be an incredible photograph – it’s an astounding render”

Ross Head of Design

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> This is my Morgan Freeman project. I'm very happy with the result. I've been trying to make a film noir tribute with this fantastic actor
>
> **Jose M Lazaro** *The Last Move*, 2007

Artist info

Jose M Lazaro

Personal portfolio site
www.josemlazaro.com

Country Spain

Software used 3ds Max, Mudbox, ZBrush, BodyPaint 3D, Photoshop, mental ray

Work in progress...

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> This piece took two weeks with scene design, sketch and 3D. The old houses are the Safranbolu Evleri from Turkey
>
> **Ertug Yenidemir** *Captivity*, 2008

Artist info

Ertug Yenidemir

Personal portfolio site http://ertug.cgsociety.org/gallery

Country Turkey

Software used 3ds Max, Photoshop, V-Ray, Color Efex Pro filter

Work in progress...

The team Loves

> For what could have been a clinical and sterile architectural piece, it's the warmth of the light, detailing, slightly grimy textures and the juxtaposition of almost Art Deco futuristic buildings and soft, natural elements that makes this image stand out from the crowd

Lora Group Art Editor

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Bernadette was a personal project made over a couple of months. I had developed my skills over the past three years and wanted to produce a high-quality piece of artwork of the highest standard. The project also gave me the opportunity to use new tools and develop my skills in new software

Stephen Molyneaux
Bernadette, 2008

Artist info

Stephen Molyneaux

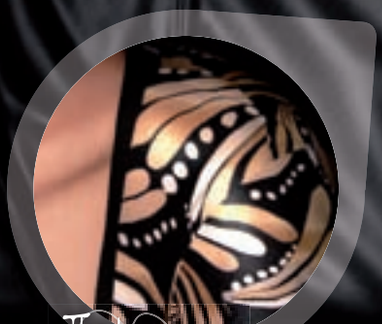
3DArtistonline.com
Username old-boy

Personal portfolio site
www.old-boy.co.uk

Country United Kingdom

Software used 3ds Max, ZBrush, mental ray, Photoshop

Work in progress...



The team Loves

What Stephen has managed to do here is nothing short of creating a digital masterpiece. The use of reference photographs and the careful attention to detail for deforming the leather sofa elevate this way above the usual renders of a pretty girl in 3D. The skin textures are superb

Jo Editor in Chief

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> When I was asked by Legend Footwear to create a poster, I envisaged the angel who is ready to go down to Earth, expecting some casual meeting in the party of mankind. She looks like a pure girl with joyous anticipation
>
> **Soa Lee** *Angel's Time*, 2008

The team Loves

> This is a beautiful image full of lightness and texture, from the folds in the dress to the fluttering doves to the side. Superb styling and lighting make it all the more surprising this was a project for a shoe company
>
> **Jo** Editor in Chief

Artist info

Soa Lee

3DArtistonline.com
Username soanala

Personal portfolio site
www.soanala.com

Country Korea

Software used 3ds Max, Photoshop, V-Ray

Work in progress...

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"The main task was the creation of this strange world; this one is attractive but does not like our world. I found it very pleasing to create this made-up world, but I had some trouble with the fog (effect) and with the focal distance. I solved this with the Z-Depth render element"

Eugene Dranov *Microworld*, 2008

Artist info

Eugene Dranov

Personal portfolio site http://eugendranov.cgsociety.org
Country Ukraine
Software used 3ds Max 9, V-Ray, Photoshop CS3

Work in progress...

The team Loves

"There's something very charming about Eugene's microworld. The characters are engaging, the colours really pop out and the semitransparent water looks fantastic. It's a work of real imagination"

Duncan Editor

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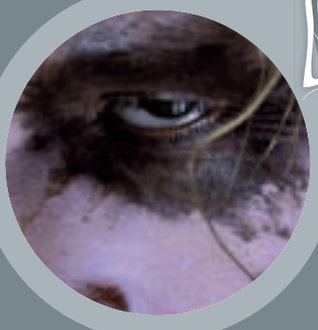
Artist info

Max Wahyudi

Personal portfolio site http://student.vfs.com/~3d68max/

Country Canada

Software used Maya, ZBrush



The team Loves

Fabulous tribute to the tragic Heath Ledger who turned in a show-stealing performance in *The Dark Knight*. The brooding intensity of the character is captured perfectly here, while the hair – created using Hair and Fur in Maya – is astonishingly similar to that of the character in the film. Definitely one of our favourite images from the launch issue

Lora Group Art Editor

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“This image is a tribute to Heath Ledger’s Joker character. I created this image to fit with a dual-screen wallpaper, although it will still work if the image is cut in half for a single screen. I sculpted the mesh in ZBrush and rendered in Maya with mental ray. The hair was created using Hair and Fur in Maya”

Max Wahyudi *The Magic Trick*, 2009

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Artist info

John Hayes

Personal portfolio site http://zugok.cgsociety.org/gallery

Country USA

Software used 3ds Max, Photoshop, V-Ray

Work in progress...

"I made this illustration with Modo's modelling, sculpting, UV layout, 3D texture painting and rendering features. I then used Photoshop to clean up the renders, adjust the colour values and add highlights to the hair. I normally use several 3D software packages, however, since Modo offers all the tools I needed, this 3D illustration was made to test it"

John Hayes
Witch and Pumpkin, 2009

The team Loves

"Come on, what's not to like here with our busty witch sat astride the glowing pumpkin. The colours are fantastic, as is the detail on the witch's outfit. Just look at those boots!"

Duncan Editor

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The team Loves

"Although the overall image is beautiful, you have to get up close to really appreciate it. Look at the rainbow haze over the water – it's crazy good!" **Jo** Editor in Chief

Artist info

Radoslav Zilinsky

3DArtistonline

Username: radoxist

Personal portfolio site
www.radoxist.com

Country Slovakia

Software used 3ds Max, Photoshop, VRay, ZBrush

Work in progress...

"I created this image primarily to be viewed close-up so the viewer can discover all the little details"
Radoslav Zilinsky
Worth Enough?, 2007

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***WALL-E* and *The Dark Knight* trump *Iron Man* in the 7th Annual Visual Effects Society Awards**

Star-studded awards

The team behind animated hit of the year, *WALL-E*, receiving their awards at the VES Awards

The Visual Effects Society (VES) dished out gongs galore during its 7th Annual Awards at the end of February. Held at the Hyatt Regency Century Plaza in Los Angeles, the awards were attended by the industry's hottest special effects teams and A-list animators and celebrated the brightest talent in the business.

The biggest surprise of the night was how the favourite, *Iron Man*, backed with five nominations, walked away empty-handed. Instead it was the teams behind *WALL-E* and *The Dark Knight* who had the biggest cause for celebration.

Disney Pixar hit *WALL-E* claimed Outstanding Animation in an Animated Motion Picture, along with two other awards, while the latest Batman flick scooped the award for Outstanding Models and Miniatures in a Feature Motion Picture for its garbage truck crash models, Outstanding Created Environment in a Feature Motion for the Gotham City sequences and Outstanding Special Effects in a Motion Picture overall.

The Dark Knight won an award for its fast-paced scenes in Gotham City

In addition to the 25 hotly contested awards, two special honours were also dispatched: a VES Lifetime Achievement prize was presented to Kathleen Kennedy and Frank Marshall, whose previous work on *The Curious Case of Benjamin Button* has been widely acclaimed, while Phil Tippett was gifted the George Melies Award for Pioneering.

The Visual Effects Society represents visual effects practitioners in the entertainment industry. To find out more about the awards and see who collected the rest of the prizes, head over to www.visualeffectssociety.com.

Previous winners

Outstanding Animation in an Animated Motion Picture
Ratatouille (2008)
Cars (2007)
Wallace & Gromit: The Curse of the Were-Rabbit (2006)
The Incredibles (2005)
Finding Nemo (2004)
Stuart Little 2 (2003)

> "This year's recipients exemplify true excellence in the field of visual and special effects. I congratulate all of the nominees"
> **Eric Roth** VES executive director

3DArtist online.com
Got an opinion on who should have won at the VES Awards? Discuss it with other 3D artists at **www.3dartistonline.com**

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3D web update

New sites and changes to your favourites – it's all here!

Mudbox gets a forum

Wayne Robson, author of many digital sculpting tutorial books and DVDs for ZBrush and Mudbox, as well as the brains behind MudboxHub.com, has announced the addition of a brand new forum to the popular site in a bid to make it more community-focused. The forum offers a Digital Sculpting section as well as a General Category for more community-based discussion as well as Mudbox news and events. Like other forums of this nature, the new addition to the site lists forum stats in addition the posts, such as latest post and total number of topics. To check it out for yourself, head over to www.mudboxhub.com/forum.

New edition of CGArena online

CGArena, the computer graphics community website famous for offering news, job vacancies, forums and galleries for the 3D and 2D world, has announced that the fourth volume of its popular eZine series is now available for download. The February to March edition of the online magazine features articles on After Effects, Photoshop and 3ds Max, as well as an array of reviews, news and gallery submissions. The pre-spring issue also reveals an inspiring interview offering an insight into the prolific career of Jason Edwards. To download the feature-packed community-orientated eZine, users will require Acrobat 6 (as a minimum) and you need to register. To download the magazine, travel to www.cgarena.com/freestuff/ezine/feb09_issue.html.

Masterpiece Lunchtime

We shine the spotlight on one artist who has an uncanny knack for capturing animal characters

Massimo Righi www.massimorighi.com

Italian CG artist, Massimo Righi, is currently working as a freelancer with his soul mate Silvia Puliè. The two share their lives and passion for 3D, currently working in the game and movie industries. Massimo's work has a strong animal flavour, with quirky and engaging takes on the animal kingdom. He explains how it is the "weird expressions, a funny behaviour or a common action" that catches his eye. This is perfectly demonstrated in his *Lunchtime* image, featuring the hungry giraffe.

Above: *Little Green* is another example of Massimo's photoreal renders

Collector's edition of Ballistics' Oddworld

Limited run of specially produced Folio

To celebrate the reprinting of one of Ballistic Publishing's most popular titles, *Art of Oddworld Inhabitants: The First Ten Years*, the brand has produced a limited run of specially produced Folio copies. The coffee-table book, which achieved cult status upon its first release, is filled with original and pioneering artwork as well as production design sketches, colour roughs, storyboards, game screens, CG/FMV stills and features exclusive artwork from Oddworld inhabitants.

The 256-page encyclopaedic-style book is available in three editions: hard cover, leather-bound Limited Edition and now the Folio Edition for collectors, which is expected to retail at $290. For further information, visit www.ballisticpublishing.com/books/oddworld/folioedition.

Animation Insiders

Learn animation skills from the pros

Some of the biggest names in animation are collaborating on a new project aimed at passing on their invaluable knowledge. Animation Insiders is a planned series of books that bring together the experience of various animators. Each book will concentrate on a theme, helping to expand your skills.

Some of the participants include Jason Ryan, supervising animator at DreamWorks Animation SKG, Shahar Levavi from Weta Digital and Anthea Kerou from Sony Animation. The first launch is planned for June and you can get updates from www.squeezestudio.com/SStudiopress.

Website of the month

Fantasy Art Design http://fantasyartdesign.com/

Free models, software, wallpapers, artwork and more

Establishing itself as a hedonistic paradise for the digital art community, with a penchant for all things mythical, magical and fantastical, the Fantasy Artist Design website offers an online haven for creative art fans. Inviting artists of every level, the website serves to connect, inform and celebrate the achievement and excellence of its members in all aspects of the genre and its community. Once registered, members have access to an extensive gallery as well as its unique catalogue of wallpapers, free art software, 3D models, animated desktops and more.

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Free 3D Resources

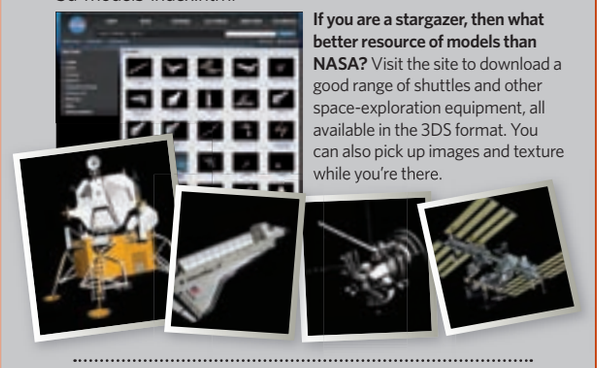
Free models online

Take advantage of high-quality models that cost nothing more than a few mouse clicks

NASA 3D Models

Over 30 detailed replicas of NASA shuttles, satellites, equipment and more

Web: www.nasa.gov/multimedia/3d_resources/3d-models-index.html



If you are a stargazer, then what better resource of models than NASA? Visit the site to download a good range of shuttles and other space-exploration equipment, all available in the 3DS format. You can also pick up images and texture while you're there.

Archive 3D

A phenomenal depository of 3D models targeted at fans of interior scenes

Web: http://archive3d.net/

The Archive 3D site is bursting at the seams with furniture models. The search system allows you to browse by category, which includes furnishings, doors, windows, lamps, fireplaces, gardens and more. You don't have to register – just click and download.

Wirecase

Luxuriate in premium 3D models to buy, or even better, download from the Free area

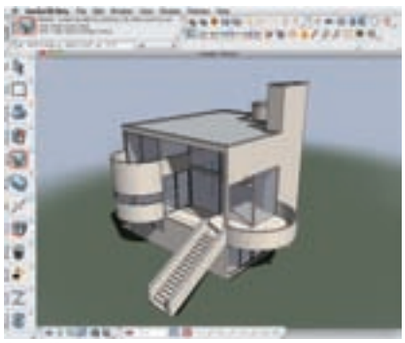
Web: www.wirecase.com

There is plenty of 3D candy at the Wirecase website. In addition to collections that can be purchased, visitors also benefit from a sparkling array of free models. You do need to register, but after that you can access cityscapes, cars, interiors and other model delights.

Bonzai3d beta

AutoDesSys invites 3D community to help shape its modelling software for realising conceptual designs

A beta version of Bonzai3d is now available online for modelling fanatics. The 3D modeller is being pitched as an easy-to-use and geometrically robust application based on the needs and requests of design professionals. The producers hope the 3D community will help thrash out any glitches or design issues before the program launches in April, when the 3D app is set to sell at an introductory rate of $500.



Bonzai3d allows its users to take concept sketches and turn them into detailed models

To coincide with the beta release, AutoDesSys is offering form.Z RenderZone Plus at a 25 per cent discounted price of all new licences until 30 April. The app provides photorealistic rendering with global illumination based on Final Gather, Ambient Occlusion and Radiosity for simulation of lighting effects and rendering techniques.

To help shape the future of Bonzai3d, head over to www.bonzai3d.com.

work in progress

Ayanna: Fighter Pilot

We caught up with Grant, a self-taught 3D artist currently working in Australia, to discover a bit more about his *Ayanna* image and how he specialises in hard-surface models

Grant Warwick http://grantwarwick.com/

Grant began working with 3D models back in 2004, starting out with Bryce 3D. He now works with 3ds Max, which has become his program of choice. Here, we present a quick glimpse of a work-in-progress.

Ayanna: Fighter Pilot is a project that involves not only the main figure, but also the Aura Speeder vehicle. The models are close to completion, with a possible option of changing some decals/shaders. Get in touch with us and let us know how you would progress with the images.

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Artist spotlight

Classic Interior

Meet Viktor – an architect from Budapest with a keen eye for stunning interior and exterior scenes

Viktor Fretyán http://radicjoe.cgsociety.org/gallery/

Viktor has an impressive grounding in 3ds Max – he has been using the program for over ten years. It's only in the past few years, though, that he has been focusing on architectural visualisations. Take a look at his portfolio and you will be blown away by intricate interiors and stunning exteriors. All of his work has an exceptional quality of light, thanks to his other tool of choice, Photoshop. Viktor explains that "post-processing is at least as important as the rendering part to me." *Classic Interior* is a departure from Viktor's usual choice of minimal scenes, causing him to "pay extra attention to every little detail in the scene."

Software shorts

Get the lowdown on updates and launches

New tools for CINEMA 4D

Craft Animations has extended its Craft Director Tools for users of Maxon CINEMA 4D. Tools provide real-time camera control for cinematic results. Vehicles allow artists to create realistic and accurate simulation for in-motion vehicles. The Accessories set lets you add finishing touches to action-packed movies, while Craft Freeware is a toolbox intended for real-time recording. Find out more about each product from **www.craftanimations.com**.

e-on software makes Vue 7 free

e-on software has made the Personal Learning Edition of its flagship products Vue 7 xStream and Vue 7 Infinite available for free. The Vue 7 PLE is a fully functional version of the flagship products, which are largely considered leading solutions for the creation, animation, rendering and integration of natural 3D environments for movie, broadcast and architecture. It is free to download now from **www.vue7.com/ple**.

3DArtist 02
www.3DArtistonline.com
Practical inspiration for the 3D community

What's in next issue

Ready to go
Wen Lin «
Personal portfolio site
http://coolen007.cgsociety.org/

Learn how this incredible image was created

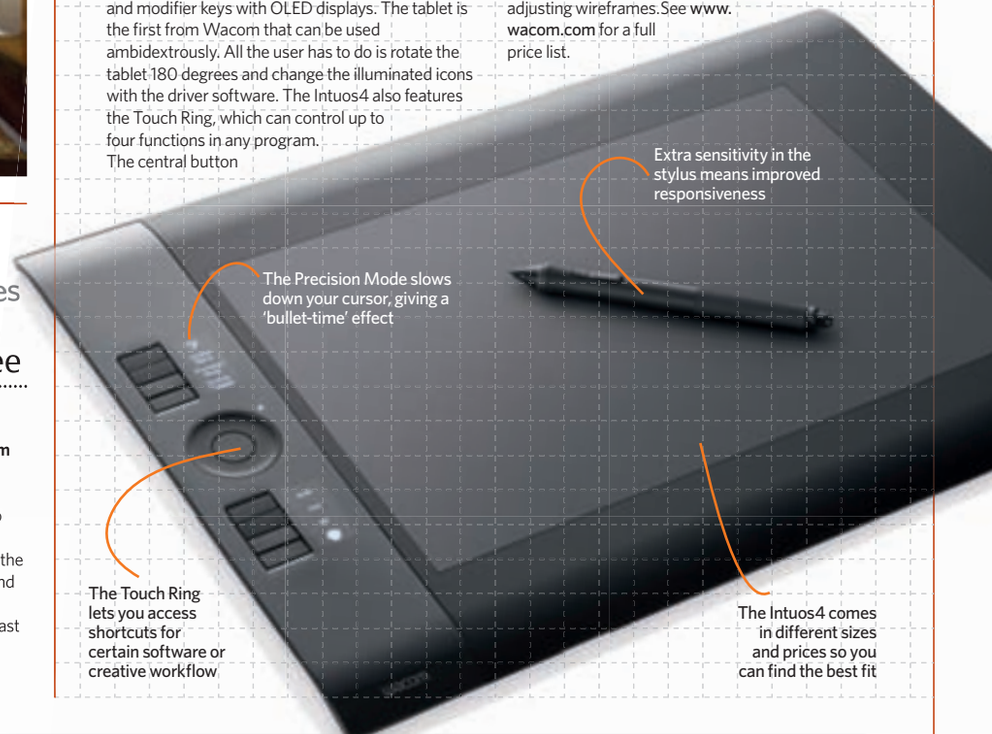
Issue two: on sale 23 April

For more issue 2 information, visit **www.3dartistonline.com**

Tools of the trade
WACOM INTUOS4

New tablet delivers customisable control to everyone

Leading graphics tablet manufacturer Wacom has unveiled its latest product, the Intuos4. The new tablet features improved pen performance, offering 2,048 levels of pressure sensitivity. It can be customised for specific tools, as well as shortcuts and modifier keys with OLED displays. The tablet is the first from Wacom that can be used ambidextrously. All the user has to do is rotate the tablet 180 degrees and change the illuminated icons with the driver software. The Intuos4 also features the Touch Ring, which can control up to four functions in any program. The central button toggles between functions such as zoom, layer selection and canvas rotation, and an informative LED highlights the current action. The Precision Mode is great for 3D users, as it will temporarily slow down your cursor, making it perfect for adjusting wireframes. See **www.wacom.com** for a full price list.


Extra sensitivity in the stylus means improved responsiveness
The Precision Mode slows down your cursor, giving a 'bullet-time' effect
The Touch Ring lets you access shortcuts for certain software or creative workflow
The Intuos4 comes in different sizes and prices so you can find the best fit

3DArtist online.com

Create your gallery, browse the artwork, chat with experts and artists and get tips and techniques at

www.3dartistonline.com

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> “Virtual models or characters have a great future in my opinion. We are currently working on our vision of a female robot”

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Designing the future

Franz Steiner on the inspirations behind his work...

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Duncan Evans talks to Franz Steiner about the futuristic visualisation work of this New York and Berlin-based design agency. Blutsbrueder Design specialises in retouching, CGI and photography for the advertising and commercial industries

Designing the future

Company Blutsbrueder Design
Founded 2004
Company website www.blutsbrueder-design.com
Personal portfolio site http://franz.cgsociety.org/gallery/
Country USA
Software used 3ds Max, V-Ray, Adobe Photoshop
Expertise Art direction, CGI, retouching
Client list Microsoft, Mercedes Benz, Renault, DuPont, Braun, Verizon, McCann Erickson
Software used Maya, mental ray and Photoshop

> At Blutsbrueder Design, we combine the aesthetics and themes from the movie, fashion and photography industries. My father is a photographer so I grew up with a sense for beauty and design

Franz Steiner art director, Blutsbrueder Design on the inspirations behind his work

Franz Steiner, a painter and certificated digital artist, and his father Gerhard Steiner, an established advertisement and fashion photographer, founded Blutsbrueder Design in January 2004 when they opened their first office in Düsseldorf in Germany.

From there, they quickly started working for clients such as Mercedes Benz, Renault and a host of other car companies, as well as big names like the software giant Microsoft and the worldwide advertising agency McCann Erickson.

In the winter of 2004, they opened their next office in Berlin and at that time Lane Tesanovic, a certificated lawyer, joined the Blutsbrueder team, heading the management, administration and the organisation of all productions. At the beginning of 2007, Blutsbrueder opened an office in New York with a view to establishing itself in the US market.

Blutsbrueder Design is now an acclaimed design studio with a roster of international clients covering a number of different fields. Specialising in art and advertising print productions with a focus on visual effects, Blutsbrueder Design provides both the creative direction and the final implementation of the image. This service includes 3D work from its accomplished team of digital artists, retouching, post-production and, available as a special service, matte painting.

What marks Blutsbrueder apart from normal design agencies is the complete understanding and willingness to use advanced 3D imagery with its inherently technical nature with the creative elements of art and advertising. Since 2004, the company has drafted concepts, created designs and provided art direction for prestigious advertising agencies, design/fashion magazines and PR companies.

3DArtist: *What is it that makes Blutsbrueder Design different from other design studios?*
Franz Steiner: At Blutsbrueder Design, we combine the aesthetics and themes from the

Ⓐ Franz and his father Gerhard worked on the photography concept for this shot together. Franz himself came up with the glossy, Eighties-esque decadent outfit to signify impractical and over-the-top luxurious excess

Ⓑ A male model was used to pose in the position that the robot would take up so that the pose and muscle tightness of the model was completely accurate. Without something physical to hold it, the pose would have been difficult

Ⓒ The face paint on the male model served two purposes. First, it ensured a similarly high level of reflection back onto the model's face. Second, it gave her a direct image to interact with that would be similar to the robot

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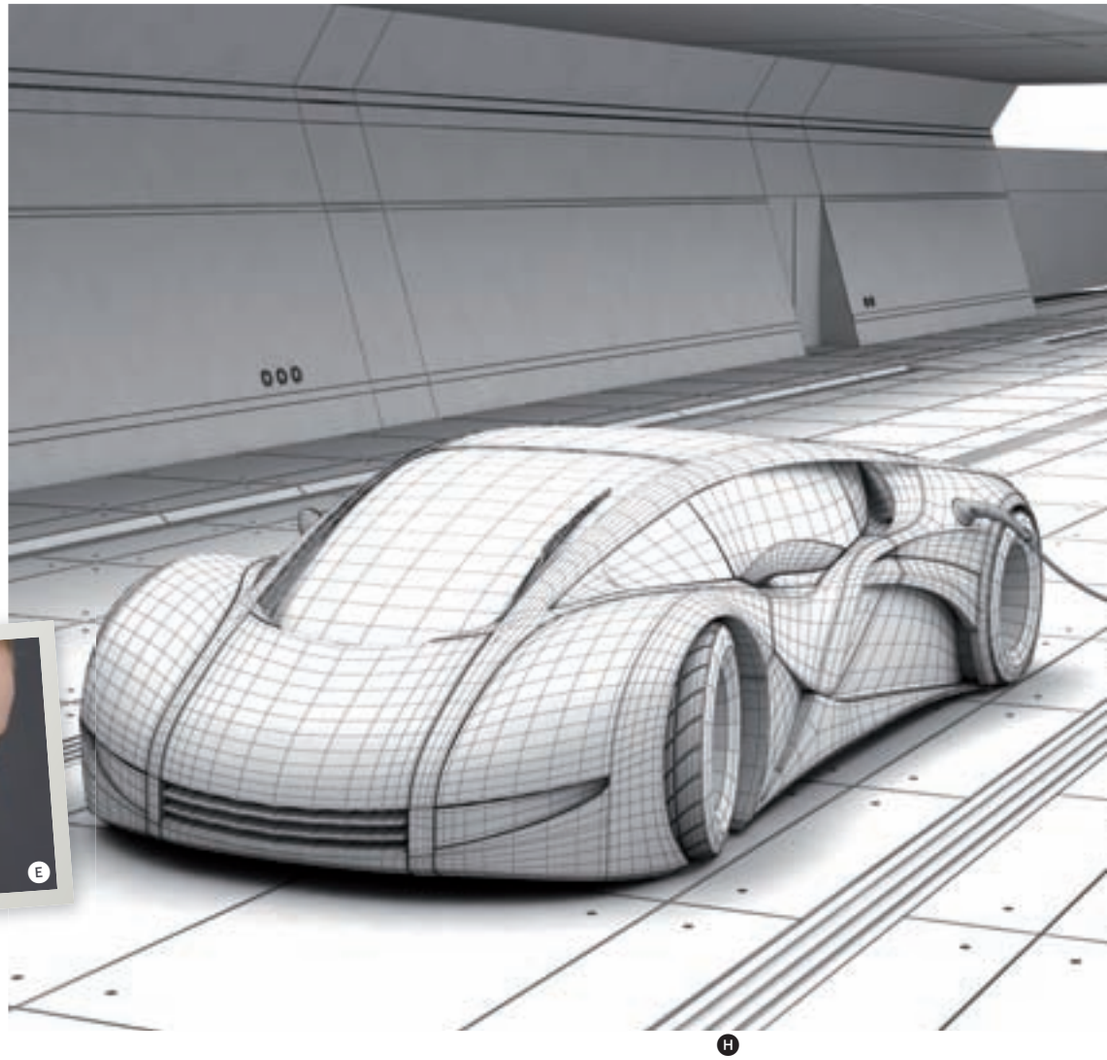

H

movie, fashion and photography industries. My father is a photographer so I grew up with a sense for beauty and design. I then studied at a film school with a focus on visual effects. I guess all these influences make Blutsbrueder a bit different than a usual CGI or retouching studio.

3DA: *Who are your main clients?*
FS: So far, we are working with new clients a lot. Our clients come from Europe, USA and the Middle East. We have worked with the automotive industry through Mercedes Benz and Renault, with Microsoft and Braun, with advertising agencies like McCann Erickson, as well as photographers such as Terry Gates.

Modelling the future

These projects all start with a basic idea of the concept that we then develop into what we want to present, whether this is for a client or ourselves. It's usually a combination of sketches or photographs with sketched elements that will be replaced by the CGI. We then move on to photographing any elements that are going to be present in the final shot. Then we start modelling the subjects or objects in 3ds Max until we have a final wireframe model. The key part then is unwrapping the meshes and creating or painting the textures and setting the high levels of reflectivity that you see in most of the pictures. When the CGI and photography are combined, there is always a measure of cleaning up and fitting together in Photoshop afterwards.

3DA: *You've garnered a great deal of attention for your fantastic series of futuristic images. Were the interiors, the car shots and the robots all part of the same brief, or seperate?*
FS: Most of these images are our own productions. We produce them entirely from concept to final retouching. You can buy those images though our partner, Corbis.com.

D This image was for a series on how we will use devices and technology in the future. It suggests the belief that design technology will become more personal and orientated towards accessing knowledge

E The model was posed in exactly the right position for the subsequent addition of the 3D glasses in Photoshop. Particular care had to be taken over refraction of light through the edges of the glasses and also the reflections

F One of the early rough sketches for the concept of the personal robot. Steiner wanted to get over the concept of the robot being a capable hand around the home, while life for the humans becomes easier and more glamorous

G The detail in this shot is in the background. It's part of the concept series detailing replaceable human parts with off-the-shelf robotic parts. Look at the shelves in the background – they're all robotic components

H The full-modelled wireframe for the futuristic New York taxi service was created in 3ds Max with a friend of Steiner's whose passion was cars. The concept for this project was for a super-aerodynamic vehicle

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I

> I worked on this image with a friend whose passion is to design cars. I loved his design and started creating a world around it

3DA: *There are lots of shots of people with legs and feet being replaced. What was that all about?*
FS: This is another in-house production. We love to create scenes that take place in the near future. For me, it's a great way to live my passion for product design. Creating all these futuristic gadgets is just a blast!

3DA: *There's a scene featuring a futuristic New York taxi. What was the design thinking for the car, and what software did you then use to model and construct it? How was the model added – we assume she's a real person? – and how were the reflections generated?*
FS: I worked on this image with a friend of mine whose passion is to design cars. I loved his design and started creating a world around it. We used 3ds Max and Photoshop. We shot the model in our studio in Germany and, as you said, we faked the reflections of the model in Photoshop.

3DA: *For the series of images on personal robots, please explain the creative process that you went through to create them. There's a guy with white face make-up featured in the non-CGI shots – why did you use him?*
FS: First of all, we had a male model on the set to make it easier for our female model to interact with someone. Since we knew that the robot would be white, we tried to have our real model the same to get some of the bouncing white light. In the end, we copied the male model's eyes into the final images to bring our robot to life. The white colour made it easier to paste real parts into the CGI face.

3DA: *Where did you get the idea for the design of the robots? There's a certain similarity with the robots from the Will Smith film, I, Robot. Was that intentional or a coincidence?*
FS: We wanted the robot to be something special and new, but we also wanted to use a certain aesthetic that was not too new to the viewer. So we gathered material and designed a personal robot how we thought people would like them to look. I was always amazed by the robots in Björk's music video for *All Is Full Of Love*. We didn't want to go too crazy with new materials and technologies. If you only have a still image, you have to be very clear and it has to be understandable at first sight.

J

Making it all happen

The initial concepts concerned make use of advanced technology, from utilising artificial parts, to gadgets and transportation to the ultimate expression of advanced technology – the personal robot. To create the images, the humans were shot

I The model was shot in the studio and the other elements were all added in Photoshop once the main picture was rendered. The model was composited into the scene and the reflections were mocked up in Photoshop

J This is part of the futuristic leisure series of images and features a model that was shot in the studio. The background is a simple construct of panels in 3ds Max with a white reflective decoration. The model was then composited

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L

L In the future, when your leg starts to show wear and tear, or if there's a newer model that looks better, you'll simply drop by the spare parts shop and pick up a new one. The concepts of the future meet retro Eighties chic in this image

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> “The creation of the robot took about one and a half months. The finishing of all the images took another one and a half months”

in the studio, sometimes with another model mocked up as the robot for reference and posing. The background scenes were modelled in 3ds Max to be clean and white, while the various parts for human accessories, gadgets and the robot were modelled individually.

3DA: *What software did you use to model and render these scenes?*
FS: We used 3ds Max and V-Ray.

3DA: *How many people worked on this series of images, and how long did they take to execute?*
FS: There were two artists. The creation of the robot took about one and a half months. The finishing of all the images took another one and a half months.

3DA: *Have you had any negative feedback on the concept of the robot really being a very personal robot?*
FS: Not so far, I think the fact that it’s a man who works for a woman in all of these images makes everybody like it. If it was a female robot, we would have to be a bit more careful.

Tearing up San Francisco

One of the more unusual client requests came from the Bay Area Chapter of the American Red Cross. It wanted to publicise the danger of earthquakes in their region through the use of a series of car bumper stickers.

3DA: *You produced some images under the theme ‘Supercrack’ for the American Red Cross’s Bay Area Chapter. What was that all about? Did it present any unforeseen technical challenges?*
FS: This image was created completely in Photoshop. The task was to create an image that can be used as a oversized sticker on the Union Square in San Francisco. It should make people more aware of the dangers of earthquakes in that area. We were limited to the size of the sticker, which was very long but very thin, so everything had to be very narrow. It wasn’t too easy to show the crack and the cars underneath. We used photo patches of rocks and parked cars to get everything finished.

3DA: *You worked in conjunction with photographer Terry Gates on some projects. How did that come about and can you say what it was for?*
FS: Terry Gates is a talented New York-based fashion photographer. He likes our style and we love his. So sometimes we just do the usual retouching (cleaning skin, working on values and contrast, etc) and, if necessary, we design a CGI background according to his needs.

3DA: *What’s next in the world of 3D graphic design for Blutsbrueder?*
FS: Virtual models or characters have a great future in my opinion. We are currently working on our vision of a female robot.

Finishing up

One of the interesting impressions that comes out of talking to Steiner about his work with Blutsbrueder is his passion for future technology and the implications of technology on human leisure activity. Steiner takes almost a complete opposite perspective from grungy, cyberpunk-style futures, with the clean lines and white colour scheme redolent of the Sixties vision of a happy future. The use of 3D software in implementing these schemes is essential to realising the design concepts, though. With an expanding client list and the merging of the disciplines of advertising and 3D artistry, the future looks bright and shiny for Blutsbrueder.

M This is the final composited shot showing our subject enjoying a friendly game of arm wrestling. The eye contact worked so well between the pair that the actor’s eyes were successfully composited into the robot

N This is just our two subjects laughing and joking between shots. By using a real person to composite the 3D over, the model was able to relax and relate to the subject, giving more natural poses in front of camera

O The setup shot with the actor with white face paint meant that the muscles in the model’s arm were properly defined. It also meant that the model was looking in exactly the right place to make eye contact with her robot partner

P The ultimate expression of the personal robot concept. Steiner was careful to use a real woman and place her in charge of the make robot to avoid charges of sexism. Still, next up is a female robot series of images

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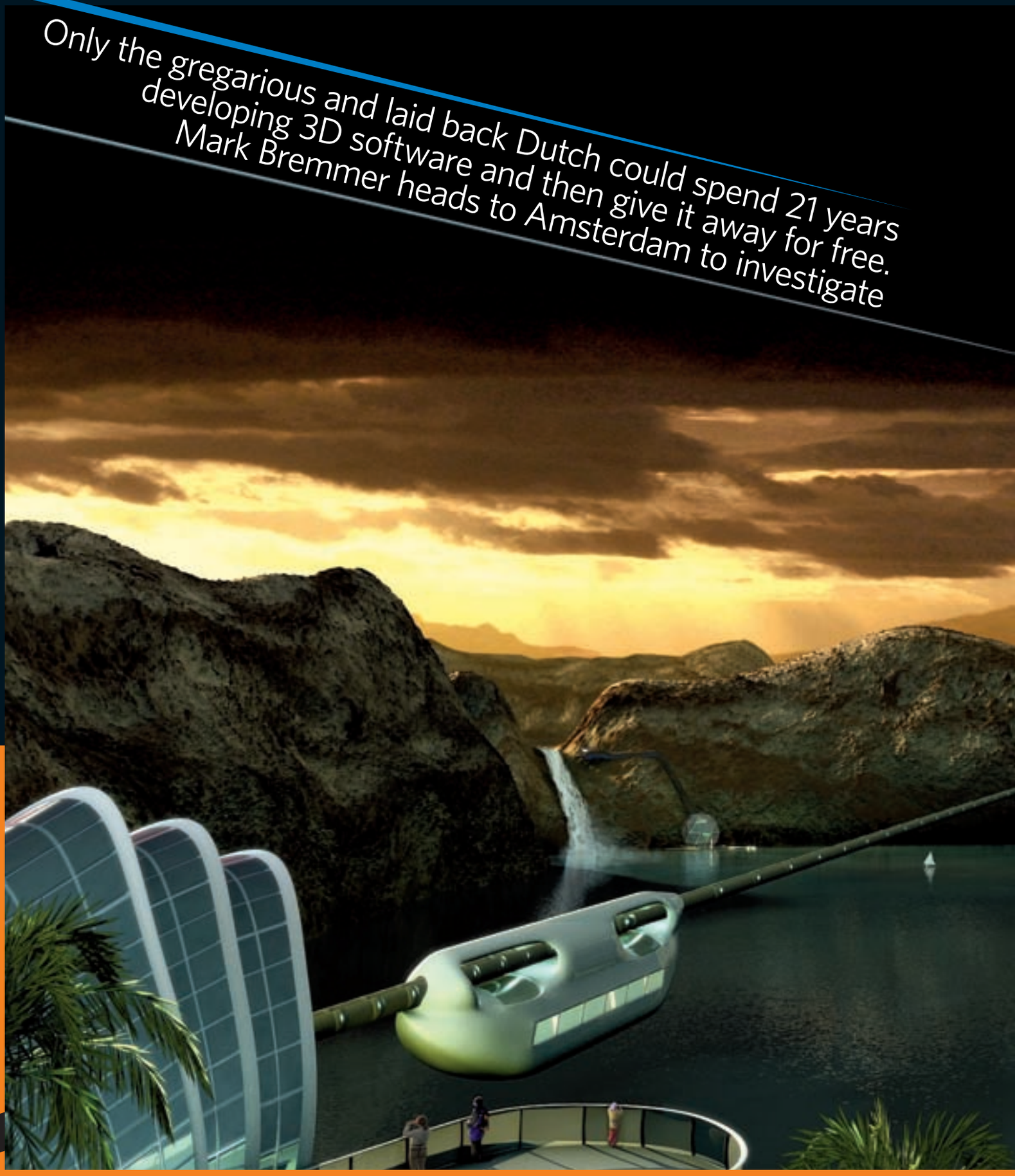
Only the gregarious and laid back Dutch could spend 21 years developing 3D software and then give it away for free. Mark Bremmer heads to Amsterdam to investigate



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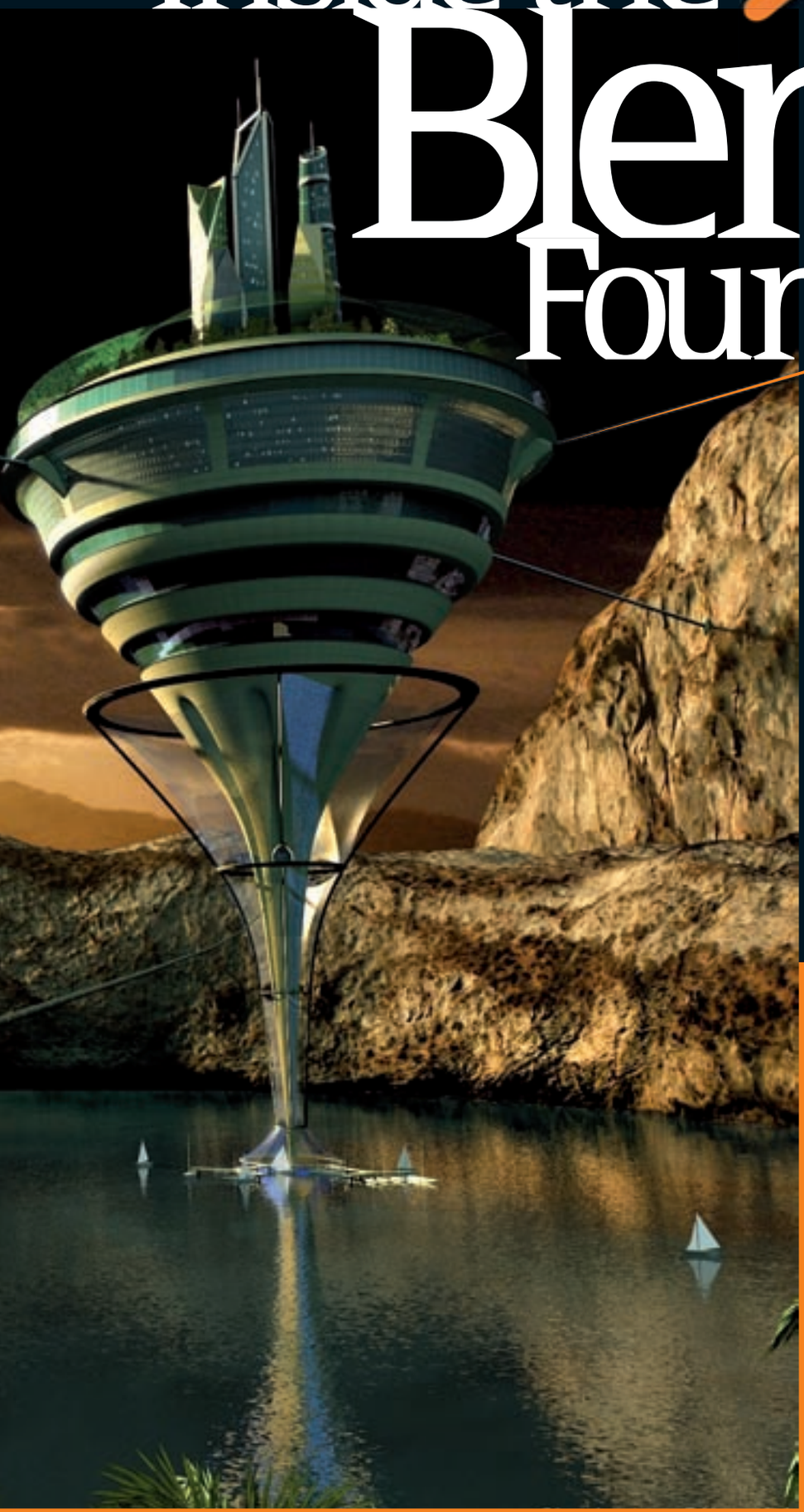
Inside the Blender Foundation



Sky Lake City
» Martin Lubich
www.loramel.net

> I've come across images that demonstrate exactly what I'm trying to accomplish in my own work. So I'll dash off an email with a question and, most of the time, a very helpful answer is sent back my way within a day or so. This seems to be a common theme among users, and one of the reasons for such an allegiance to the software

David Kaplan, a Blender enthusiast, explains why the community ethos makes the free 3D package unique

Unlike any software that you've used before, the 3D solution called Blender is not developed and managed by a commercial corporation. Astonishingly, this free and incredibly robust 3D package is maintained and grown by the Blender Foundation (**www.blender.org**), which is an independent, non-profit, public benefit corporation. Located in Amsterdam in the aptly named Amsterdam Blender Institute, a small team led by Blender patron saint Ton Roosendaal both develop and promote Blender to the world at large.

In addition to the core development of the program itself, the Blender Foundation hosts its own SourceForge-style project space at **http://projects.blender.org/**. Here, not only is there a starting point to become involved or create projects utilising Blender, but also a space where developers can create experimental

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> Blender v2.0… was released in the summer of 2000 and the user base swelled to 250,000

Big Buck Bunny
www.bigbuckbunny.org
© Blender Foundation

+ Blender trees and even complete forks if they're so inclined. Additionally, huge connecting points for both learning and developing Blender can be found at **www.blender.org/community/get-involved**.

Developing Blender

Blender is not new. In fact, in the world of computers, the starting point for Blender is practically prehistory. Beginning in 1988, Ton Roosendaal co-founded a Dutch animation studio called NeoGeo. Simultaneously winning awards for its work and churning out copious amounts of work, NeoGeo quickly became the largest 3D animation studio in the Netherlands, while Roosendaal himself was responsible for internal software development as well as art direction. But a developer's work is never done, and in 1995 the decision was made to rewrite the NeoGeo software from scratch. So in 1995 the rewrite began, marking the genesis of Blender.

To better address the development and marketing needs of Blender, in 1998 Roosendaal founded a new company called Not a Number (NaN). Outrageously, the mission of NaN was to distribute a compact, cross-platform 3D tool for free. And not just a basic 3D solution but a professional-level modelling and animation toolset that the general public and pros alike would find useful and capable. ? In a feat of extreme foresight, Roosendaal's method was what later became the norm for internet businesses everywhere – to provide commercial products and services around Blender's core functionality. At Blender's debut in 1999 at SIGGRAPH, the attendee response confirmed that some wise decisions had been made.

Of course, Roosendaal had to eat and developing software is neither fast nor easy. Following the favourable reception at SIGGRAPH and Roosendaal's reputation, NaN was able to attract financing of 4.5 million euros. The NaN staff grew to 50, with a virtual office of developers working from points around the world. Blender v2.0, including a game engine, was released in the summer of 2000 and the user base swelled to a healthy 250,000.

But you can't sail without occasionally encountering bad weather. A tough world economy coupled with less-than-forecasted sales spurred investors to shut down NaN and terminate Blender.

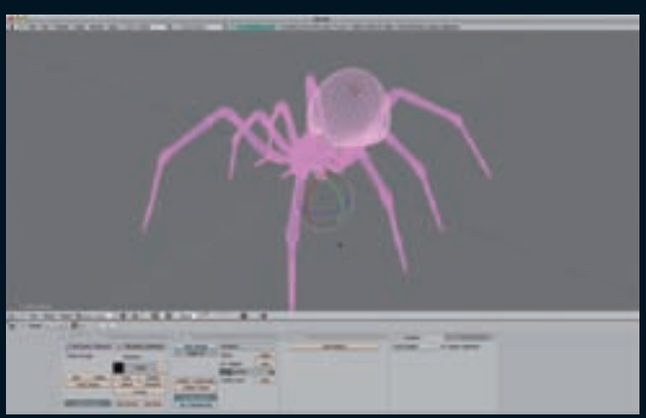
However, a passionate developer and large user base has a way of making things happen. So in 2002 Roosendaal started the nonprofit Blender Foundation, with its hallmark being open source code. Roosendaal courted the former NaN investors and was able to get them to agree with the open source vision and a unique campaign was begun called Free Blender. This campaign sought to raise 100,000 euros as a one-time fee so that the NaN investors would agree on open-sourcing Blender. Astoundingly, the goal was reached in seven short weeks. On 13 October 2002, Blender was released to the world under the terms of the GNU General Public Licence.

Open source is a double-edged sword, cutting both ways. While day-to-day

The Blender timeline

1988 1989 1990 1991 1992 1993 1994 1995

- 1988: NeoGeo studio and software created
- 1995: NeoGeo software rewritten for open source



The open source software Blender has come a long way since its early days as NeoGeo

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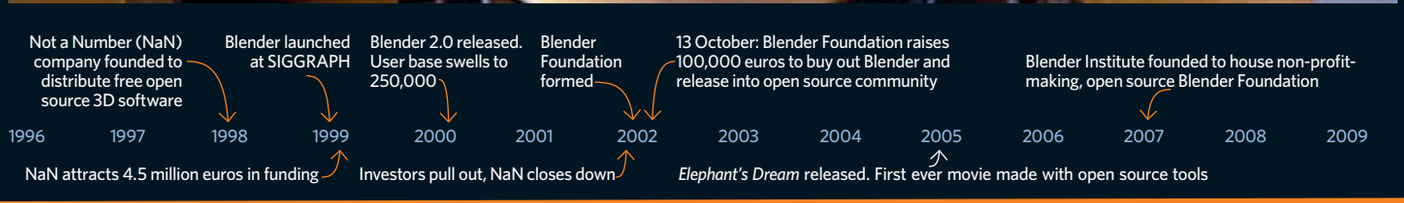
Ton Roosendaal, lead developer of Blender and chairman of the Blender Foundation

Dolomites 4
Bertrand Benoit »
www.bertrand-benoit.com


Not a Number (NaN) company founded to distribute free open source 3D software
Blender launched at SIGGRAPH
Blender 2.0 released. User base swells to 250,000
Blender Foundation formed
13 October: Blender Foundation raises 100,000 euros to buy out Blender and release into open source community
Blender Institute founded to house non-profit-making, open source Blender Foundation
1996
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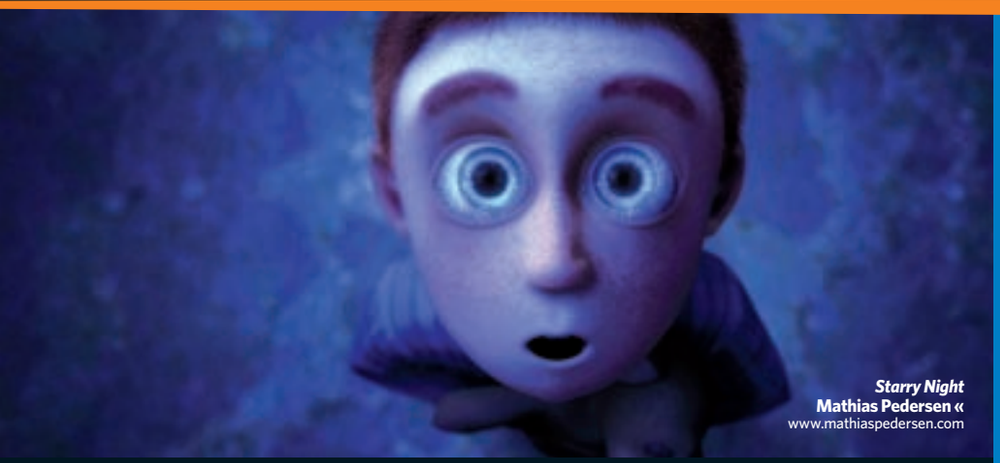
NaN attracts 4.5 million euros in funding
Investors pull out, NaN closes down
Elephant's Dream released. First ever movie made with open source tools



Starry Night
Mathias Pedersen «
www.mathiaspedersen.com

feedback from users and developers was outstanding, it was also tough to organise and manage. A central focus was required to help channel the development. Consequently, the Blender Foundation decided to start a project bringing together outstanding artists in the Blender community and challenge them to make an exciting 3D animation movie short.

'Project Orange' was the result of this in 2005, leading to the world's first and widely recognised Open Movie entitled *Elephant's Dream*. Created entirely with open source tools and assets, the results were published under an open licence, the Creative Commons Attribute.

Seeing the success of Project Orange, Roosendaal established the Blender Institute in 2007. Now the permanent office and studio, this made it easier to achieve the Blender Foundation's goals while co-ordinating and facilitating open projects related to 3D movies, games and visual effects.

In April 2008, the Peach Project Open Movie entitled *Big Buck Bunny* was

Good foundations

In this day of gigantic corporate amalgamations, the Blender Foundation simply sounds too good to be true. But it's not. The goals of the Foundation are brief and succinct, as you can see here:

- To establish services for active users and developers of Blender
- To maintain and improve the current Blender product via a public-accessible source code system under the GNU GPL licence
- To establish funding or revenue mechanisms that serve the Foundation's goals and cover the Foundation's expenses
- To give the worldwide internet community access to 3D technology in general, with Blender as a core

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City
» Bertrand Benoit
www.bertrand-benoit.com
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Dolomites 2
Bertrand Benoit «
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Altruism
» Mathias Pedersen
www.mathiaspedersen.com

completed in the Blender Institute. Currently, the open source game *Apricot* is being developed.

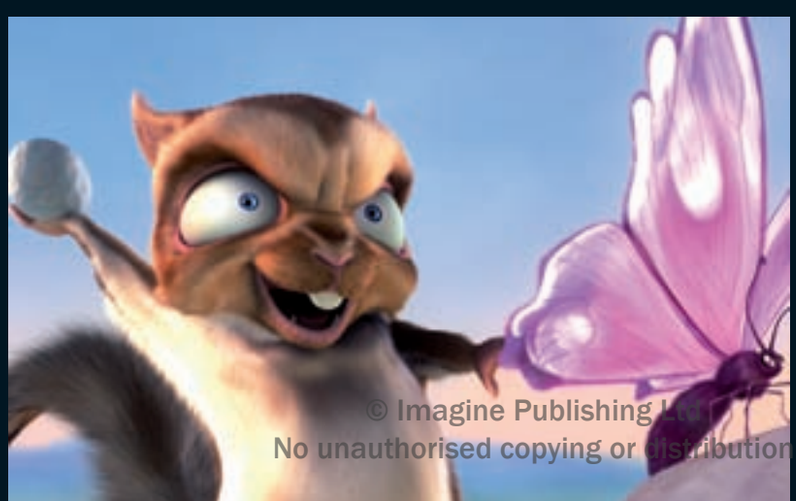
The Blender community

For those willing to learn a professional-level 3D solution, Blender is the great equaliser. The only investment needed is time. Consequently, Blender has a rich and varied international user base and community. A full listing of language-specific communities can be found at **www.blender.org/community/user-community**. The accompanying images for this article have been created by Blender faithful as young as 18, as well as professional studios that have integrated Blender into their daily workflow pipeline. Truly, desire and ability are the only limiting factors for any user of Blender.

Learning a software as versatile as Blender is not a fast process, even if you are fluent in another 3D package. While many skills are transferrable between softwares, documentation is the key. While the Blender Foundation maintains the online documentation, the user tutorials are the heroes. Links from the documentation pages to both static and video tutorials reveal common themes and questions users have. Chances are, if a new user has a question, its answer has been provided by another user.

A common theme among Blender users is the 'give-back' mentality that permeates the community. Many of the links provided on the Blender site will take visitors to users' websites and galleries. User David Kaplan cites: "In visiting other users' galleries, I've come across images that demonstrate exactly what I'm trying to accomplish in my own work. So I'll dash off an email with a question and, most of the time, a very helpful answer is sent back my way within a day or so." This seems to be a common theme among users and one of the reasons for such an allegiance to the software.

Another tier of communities are the ones that are set up as forums where fellow users can post questions, show work and help others. While there are many forums for 3D in general of which Blender might be a small part, the amount of forums dedicated solely to Blender is a testimony to the supportive and encouraging environment that has sprung up. There are far too many Blender user communities to list them all. Highlighted in the boxout on the following page are just a few to show the diversity of opportunities provided through the community environment.



Evil Frank
www.bigbuckbunny.org
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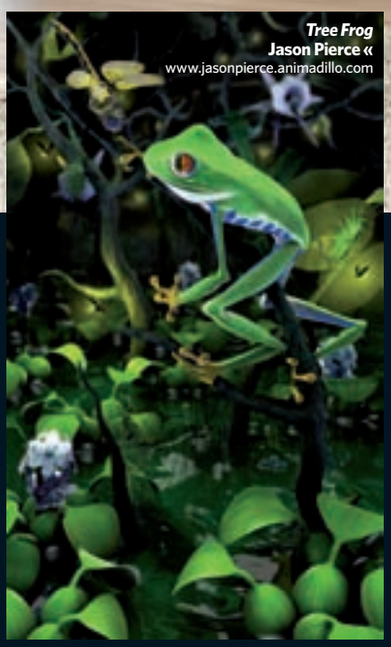

Tree Frog
Jason Pierce «
www.jasonpierce.animadillo.com

Links to the community

There are many Blender user communities, including...

www.blendernation.com
www.blender-fi.org
www.steam-train.de
www.blender.it
www.blenderartists.org
www.blendermasters.com
http://blender.doc.fr.free.fr/
http://blender.guanajuato.net

> “Herein lies the strength of the open source community and the methodology Blender Institute has established”

A typical question in many of the Blender user forums is, ‘Why aren’t there more user-driven projects like movies?’ The answer is the reason that Roosendaal created the Blender Institute – logistics. Movies and game projects are beguiling in their finished form but are monumentally complex in their creation. It is rare for enough people with the requisite skill sets, time and dedication to be found outside of a centrally located command post.

The Blender community isn’t just for artists, however. As evidenced by the Peach and Apricot projects (**http://wiki.blender.org/index.php/Dev:Source/GameEngine**), there are ample opportunities for developers as well. And here lies the strength of the open source community and the methodology Blender Institute has established – create a project, get demands from artists and producers, relay items to developers then create or refine solution sets accordingly.

A look into the Apricot projects Wishlist and GameLogic development reveal how features are conceived, qualified and then developed for Blender. Not for the faint of heart, these lists exhibit the larger picture and goals to which Blender is dedicated.

The Silent Killer
» Mathias Pedersen
www.mathiaspedersen.com

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A

Kieron Helsdon

Name Kieron Helsdon
Job title Lighting Technical Director
Company Double Negative
Location London, UK
Work credits *Harry Potter and the Deathly Hallows, Troy, Kingdom of Heaven, The Da Vinci Code, Captain Scarlet, Sunshine, Hellboy II: The Golden Army, Black Hawk Down*

"I really enjoyed the variety doing 3D from modelling, texturing and lighting and I wanted to do some more... I got into the film side by putting in long hours and building up a showreel"

Kieron Helsdon Lighting Technical Director, Double Negative

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Kieron Helsdon takes time out from working on the latest *Harry Potter* film to talk to Duncan Evans about his progression from disc interface designer to lighting technical director on major Hollywood films

So how do you go from developing interfaces for front cover discs to working on big budget Hollywood films? One step at a time with a lot of hard work is the answer. In 1994, Kieron was pretty much just using Photoshop. The company he worked for had a demo copy of an application called Simply 3D and he did do a few logos with that. He also had an Amiga at home and was using Imagine 3D to experiment with modelling and rendering. The only prior experience Kieron had with 3D was at university where he used the DOS version of 3D Studio while doing a Fine Art degree. After the graphics job, he took the sprite work he had done, as well as a series of sketchbooks, and applied for a job in London at a games company called Domark. They liked the sketchbooks and he started as a 3D artist there in 1995. He worked extremely long hours and weekends to develop his 3D skills, which is where we pick the story up.

3D Artist: *What kind of work did you do for Eidos Interactive?*
Kieron Helsdon: Eidos bought Domark around 1996 and we continued the game we were working on as part of its internal development team. By the time our game was published, I had worked on the title for about three years. During my time there, I worked on numerous areas from in-game cameras, creating fonts, setting up levels to designing special effects. I later ended up doing front-end graphics for the game, which involved modelling, lighting and rendering different backgrounds in 3ds Max. I really enjoyed the variety doing 3D from modelling, texturing and lighting, and I wanted to do more.

I remember finding a website of a visual effects artist called Brandon Davies, who at the time was doing film work with 3ds Max in the US. At the time, I thought it was impossible to get into that field without experience of using Silicon Graphics machines and PowerAnimator. I started doing particle animations for spells when we started working on the sequel to the game. Unfortunately, after around three months of working on the sequel, Eidos decided to get rid of all internal development to concentrate on being a publisher. In hindsight, though, this became a blessing in disguise, as with redundancy I took a chance on a three-month freelance job at Pepper's Ghost doing FX animation.

Courtesy of Universal Pictures International Home Entertainment

B

3DA: *You then worked as a 3D VFX artist for a number of TV projects on a freelance basis. Was this just a case of applying for the jobs as they were advertised, or did you find that people recommended you from one job to another?*
KH: My first break came from a VFX supervisor called Alan Marques. I sent a VHS showreel of the particle work I'd been doing at Eidos to Pepper's Ghost Productions, got an interview there and took the job. I began working on particle animation for a TV pilot for an in-house project. After that I continued to work as a freelancer, and in my first year of doing that I only had a few weeks off. At the time, pretty much every job led into another job from recommendations.

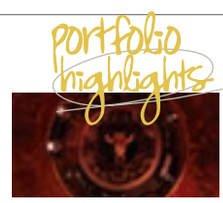
3DA: *In 2005, Gerry Anderson brought back the classic Sixties marionette series,* Captain Scarlet. *What kind of work did you undertake for the Captain Scarlet TV pilot?*
KH: I was creating textures for character heads and vehicles. The main highlight of that job for me was working directly with Gerry Anderson. I used to watch *Thunderbirds* all the time as a kid, and there I was discussing Captain Scarlet's eyebrows with him!

3DA: *How did you then make the breakthrough into the film industry?*
KH: I got into the film side of things by putting in many long hours to build up a showreel. I had been doing TV work as an effects animator and 3D generalist for two years, and I worked out at Pinewood Studios on a Hallmark TV production. Seeing the shooting going on there motivated me to try and work in film.

In 2000, I applied for a post at a company called Magic Camera (later to become Mill Film) at Shepperton Studios near London. I spoke to the head of 3D there, Gary Coulter, and I ended up doing a test shot for them for my interview. Basically, as I had no film

A *Sunshine* was filmed on relatively small budget. Many small sets had to be extended to show the size of the ship. Only the centre of the airlock was built for real

B Jolene McCaffrey, Brian Kranz and Anders Beer were the 2D, 3D and animation supervisors respectively for the Toothfairy sequence, which used a proprietary Swarm system



SUNSHINE
Director: Danny Boyle
Starring: Cliff Curtis, Michelle Yeoh, Cillian Murphy, Rose Byrne, Chris Evans, Troy Garity, Benedict Wong, Hiroyuki Sanada
Release date: 5/04/07
Genre: Adventure, Thriller, Sci-fi
Synopsis: Some 50 years in the future the sun is dying, so a mission is sent to explode a weapon to create a supernova within it. That mission fails, so a second team is sent

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© Warner Bros Pictures

D

experience, I needed to prove I could do something to the quality they were after. I worked the whole weekend and put together a test shot; they liked it and I ended up working on a film called *Pluto Nash*.

3DA: *What kind of work were you doing for Mill Film, and what films did you work on?*
KH: After a year working at Shepperton on four or five films with 3ds Max, I wanted to carry on doing film work but there was only one place in the whole of the UK using 3ds Max, so I had to switch software and needed to learn Maya. After spending a month learning Maya and armed with a new showreel, I got a job interview at Mill Film in London. During the interview I thought 'there's no way I'll get this job', but a phone call a few days later and I was working on *Black Hawk Down* before I knew it. It was a frustrating start as I knew what I wanted to do but wasn't always sure how to do it in Maya. They brought the deadline forward on the project so we ended up working around 33 days in a row with long hours to complete the shots. I also worked on *Harry Potter* and did some previsualisation work on the film *Lara Croft Tomb Raider: The Cradle of Life*.

3DA: *After a period of freelance on projects like the* Jimmy Neutron *Shockwave 3D game, you got a job with the Moving Picture Company. How did that come about?*
KH: Basically, just applying to the HR department and sending in a showreel to the company. By this point in 2003 I had two years of film experience as well as the TV work I had done. They were looking for modelling and texturing experience so I was a right fit for the position.

3DA: *On* Kingdom of Heaven*, you worked as a previsualisation artist with the Visual Effects department on location in Morocco. What did this entail and what did you then do for the CGI in the film?*
KH: *Kingdom of Heaven* was one of the best projects I've worked on. I got asked to go out to Morocco in 2004 by MPC who were set to do the majority of the visual effects. They wanted to be able to previs vast armies as well as to help visualise the city of Jerusalem. It turned out that Ridley Scott had very firm ideas in mind for the city and I was impressed with his vision for the look of the film. Jensen Toms and I worked out in Ouarzazate, Morocco for two months, sending and presenting material back and forth to MPC. We also spent around three or four weeks taking survey data for locations and sets. This involved walking the desert armed with a Theodolite to take measurements to use back in London. This was quite important, as we needed to generate an uneven ground surface for the armies to sit on. After returning to London, I joined Dan Neal as co-technical lead for the creation of Jerusalem. I worked on the pipeline setup, as well as modelling, texturing and lighting several shots.

Courtesy of and copyright Universal Pictures International Home Entertainment

C

3DA: *Next up was a teaser trailer for* Poseidon *using Maya again. Why use Maya in preference to other 3D apps?*
KH: A few reasons. Maya is used in all the visual effects houses in London, mainly because it's flexible enough to allow companies to build their software pipelines around it. This, and also because a large number of freelancers are available worldwide with Maya experience. VFX companies also make great use of Houdini and XSI, as well as other applications.

3DA: *You did some sequences for* The Da Vinci Code. *Did you need to read the book first? What kind of preparation work do you do in previsualisation jobs?*
KH: It depends. Hopefully you get a script to

portfolio highlights

HELLBOY 2
Director: Guillermo del Toro
Starring: Ron Perlman, Selma Blair, Luke Goss, Doug Jones, Anna Walton, John Hurt
Release date: 20/8/08 (UK)
Genre: Action, Adventure, Fantasy
Synopsis: An exiled prince from the mythological world is on a mission to release The Golden Army, a deadly group of fighting machines that can destroy the human race. It's down to Hellboy and his usual friends with a few new faces to thwart the plan and save the day

C *Hellboy II: The Golden Army* was mainly shot in Budapest, which involved Kieron travelling to the city first with the previs team to work out locations, lighting and arrangements for setting up the main set pieces in the film

D MPC created digital extensions for the city of Troy. Different city layouts were done for different shots; the key landmark was the raised palace in the middle of the city. There were several versions of Troy on the actual archaeological site that grew out so we took this idea to help how we did the street layouts. Damien Dagnou at MPC wrote custom 'city builder' tools to allow us to build the city with different set dressing

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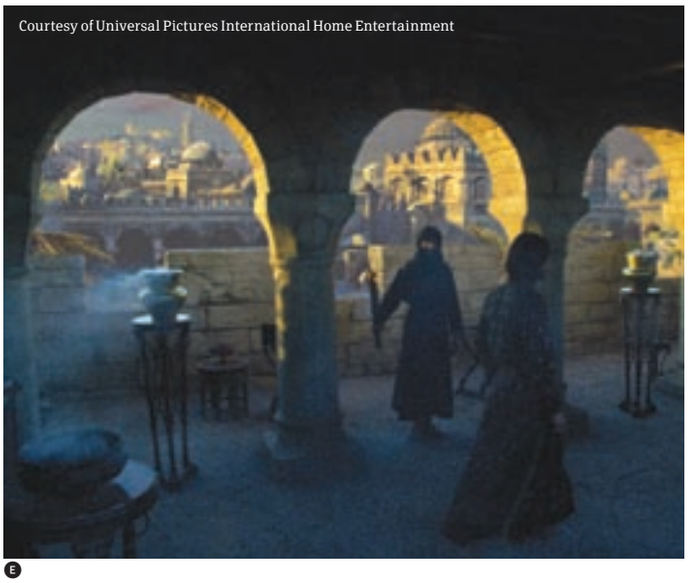
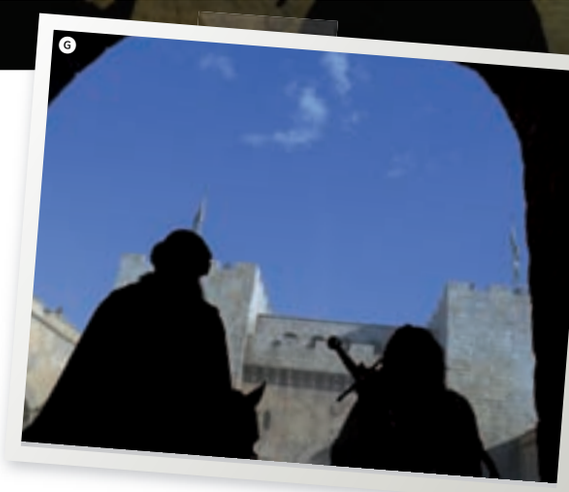

Courtesy of Universal Pictures International Home Entertainment

E

F



G

> *Kingdom of Heaven* was one of the best projects I've worked on. We spent three to four weeks taking survey data for locations

read, while at other times there are only a couple of shots you are working on so you don't need to know all the background information. Previs jobs can work out to be quite different as well, depending on the film and at what stage you join the project. Sometimes you end up doing technical breakdowns to help the visual effects supervisor work out technical issues, while at other times you are doing camera animation that will go directly to final shots.

I was only working on a couple of shots on *The Da Vinci Code* for the Westminster Abbey sequence. Most of the time you'll get storyboards to work from, but at other times you'll join before they are drawn and the client isn't quite sure what they want yet. Then you can be fast and loose in order to show ideas quickly.

3DA: *On* Sunshine*, you had a more supervisory role, overseeing CG and lighting. How did this work out in practice? Did you work directly with the director, Danny Boyle, and implement a look and feel on the lighting, which was central to the overall impact for this film?*
KH: *Sunshine* was another project that I really enjoyed, mostly because of an interest in space flight and science fiction films as well as working with a great, talented team. Also though, because we were doing nearly all of the visual effects and we got to contribute lots creatively to the film. I worked for a year and a half on the project, starting as the lighting lead in 2005 and becoming CG supervisor for the last six months. In the latter part of the project, we'd see Danny Boyle every day as he was editing just down the road. It was great to work with him and the VFX Supervisor Tom Wood to get the feedback as quickly as possible. The key objectives we had were to serve the story through the visual effects, and to try and create something that was as believable as we could make it for something so fantastical. We concentrated on trying to make it feel like it was shot for real in terms of exposure and camera movement.

3DA: Hellboy II: The Golden Army *involved four months in Budapest on previsualisation. How did this work out in practice, and what were you looking for given that it's an effects-heavy film? Your role on this film was as lighting technical director – what did that involve?*
KH: I worked for a month of pre-production and three months during shooting out at Korda Studios in Budapest with the Visual Effects department for Double Negative. The work was very varied and I also helped to gather and pass on information that we needed to get back to the teams in London. I was doing camera animation and technical breakdowns to help show up any problems for VFX supervisor Mike Wassel. An example would be testing a crane shot out with different lenses etc. We did a big creature police line-up to help show all the relative sizes of creatures, as well as building models for sets so that we could show exactly how something might look before it was built with different cameras angles, etc. There was also an animation team based back in London at Double Negative doing major previs for the Toothfairies, Elemental and the Golden Army sequences. We had a VPN connection back to London with our machines in Budapest that did a nightly sync-up of data so we could open their scenes to tweak them directly with Mike. Previs ended up being very helpful to show other teams how the sequences were likely to be shot so they could see what needed to be done.

After I got back to London, I worked back at Double Negative as a lighting technical director on the Toothfairy and the Golden Army sequences in *Hellboy II*. Double Negative was using Maya and RenderMan for lighting, as well as implementing Houdini for FX work. Personally, I really enjoy lighting shots, and my favourite was working on the sequence when the audiences first sees the Toothfairy close-up and munching on a molar.
www.groundzerofx.com
www.helsdon.co.uk

E The city was a mixture of 3D city buildings and projections. A huge set was built with two different designs next to each other. This allowed the scenes with the Kerak Castle and the Jerusalem courtyards to be shot together

F This is the shot from the film where the actors walk through a gateway and look up at the towers in *Kingdom of Heaven*. Although there were some walled areas there, most of the city and even the sky was reconstructed digitally

G This is the actual camera shot showing a bright blue sky and the limited walls that were still standing. A combination of reused sets with different dressings and CGI gave the illusion of a complete Middle Ages city

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Model, rig and render

Create a sci-fi character in 3ds Max and ZBrush

behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info

Plamen Iliev

Personal portfolio site www.piliev.com
Country Bulgaria
Software used 3ds Max, ZBrush, Photoshop, BodyPaint 3D
Expertise Modelling, texturing, rigging and scripting

The Assassin 2009

"I wanted to create a glamorous female character that bore the traits of a classic comic-style heroine with a kinky twist"

Plamen Iliev is a 3D artist with five years professional experience, working in Sofia, Bulgaria

The latest advancements in computer graphics have enabled us to easily create all sorts of images, depicting characters, pieces of machinery and environments. As long as you have an idea, the time and a computer, creating a visually pleasing still frame or animation is possible.

In this tutorial, we'll walk you through the steps of creating one of my characters, Assassin. She started out as a simple comic-style drawing, which I decided to further develop and transfer into the world of 3D computer graphics. The core application I used during the entire process was 3ds Max, but I also did some sculpting in ZBrush and texture painting in BodyPaint and Photoshop. One of the most difficult tasks I faced was making her hair, however, I took a procedural approach (you'll find out more about this in the step-by-step guide). The scene was rendered in mental ray, with the use of a few unlocked features that I consider the hidden gems of this fantastic rendering engine. Finally, I did some basic compositing and touch-ups in Photoshop. This image was a personal project that helped me learn more about the different aspects and stages of character creation, and I hope the tutorial will help you as well.

01 Modelling the body and face

We will begin modelling the face in 3ds Max. Create a single polygon, then turn it into an Editable Poly object and extrude extra polygons from the existing edges. Cut into the mesh in order to add more resolution where needed A. Soft Selection comes in handy when adjusting the proportions.

Next, create a base mesh for the body in 3ds Max and export it as an OBJ file. Then bring it into ZBrush and add several levels of subdivision. Now that there is enough resolution to work with, sculpt out the major muscles B. For this, use the standard brush with the lazy option turned on. The sculpt is complete, but it contains so much geometry that it's practically unusable back in Max, so start bringing the number of polygons down. Create a ZSphere rig and start drawing new edges over the underlying sculpt C. This step can reduce the poly count by a factor of ten!

02 Clothes and hair

The boot consists of several pieces of geometry, just like in reality. Make the sole and heel look hard by adding extra edges, then follow the form of the ankle and model the softer parts of the boot. You may want to +

A Once your polygon has been turned into an Editable Poly object, you can extrude extra polygons. Cut into the mesh in order to add extra resolution when needed

Concept

The concept began as a naked figure in a rose or fabric covering. I had the notion of contrasting the pinks with the green hair. The pointy ears suggested an alien character but I dropped that idea.

B Bring the model into ZBrush and add several levels of subdivision to ensure there's enough resolution

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On the Disc

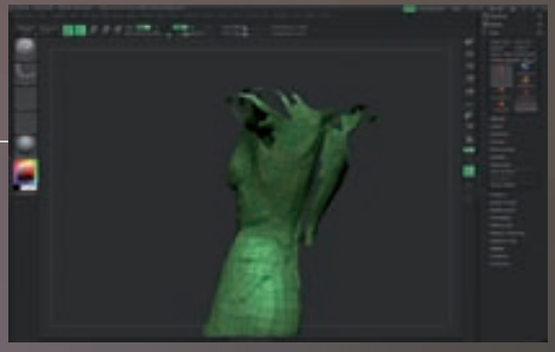
assassin_untextured.obj
Save yourself some modelling time by using the raw model created here

Software used in this piece

3ds Max 8 | V-Ray 1.43 | Photoshop

> The scene was rendered in mental ray, with the use of a few unlocked features that I consider the hidden gems of this fantastic rendering engine

C At this point the polygon count is too high, so create a ZSphere rig and start drawing new edges over the underlying sculpt



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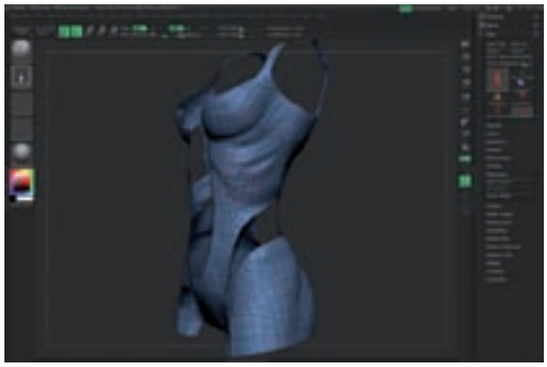
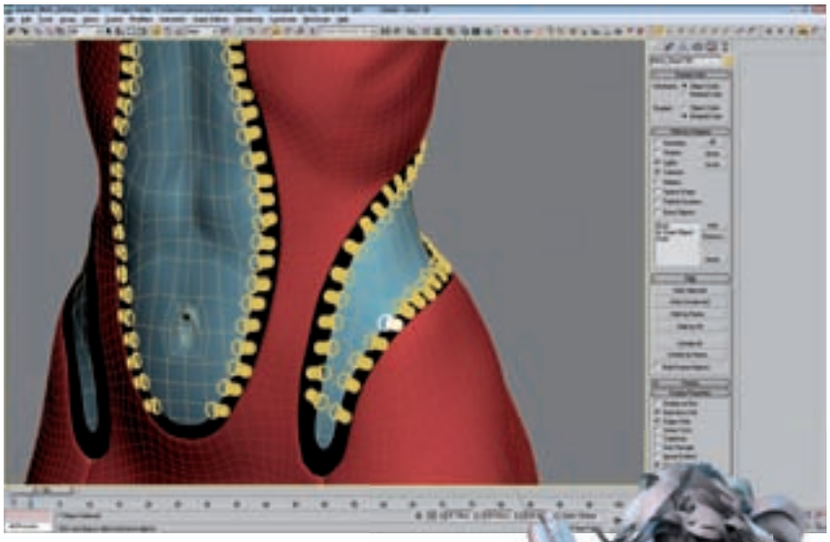


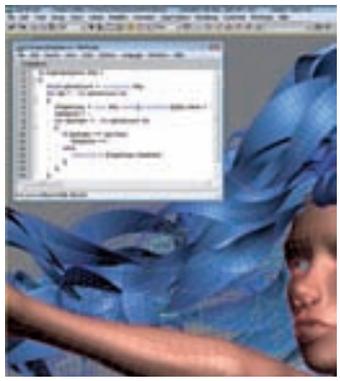
D Now the ZSphere rig can be used to overlay new polygons for the party dress



E Although it takes time, adding the details to the dress, like buckles and rings, will enhance it

extract the geometry from the leg itself, which saves time. Load up the body in ZBrush and use the ZSphere rig to overlay new polygons for the party dress D. We already know that it will consist of several pieces stitched together, so make sure you have edge loops. You'll be cutting along these later.

Once you've got the party dress and the boots done, you can move on to spicing them up with some details. Model straps with buckles and place them across the chest and back. Then model the rings that will be holding the laces and



F Now it's time to be a hairdresser, so detach geometry from the head and add some hair

> "Once you've got the party dress and the boots done, you can move on to spicing them up with some details"

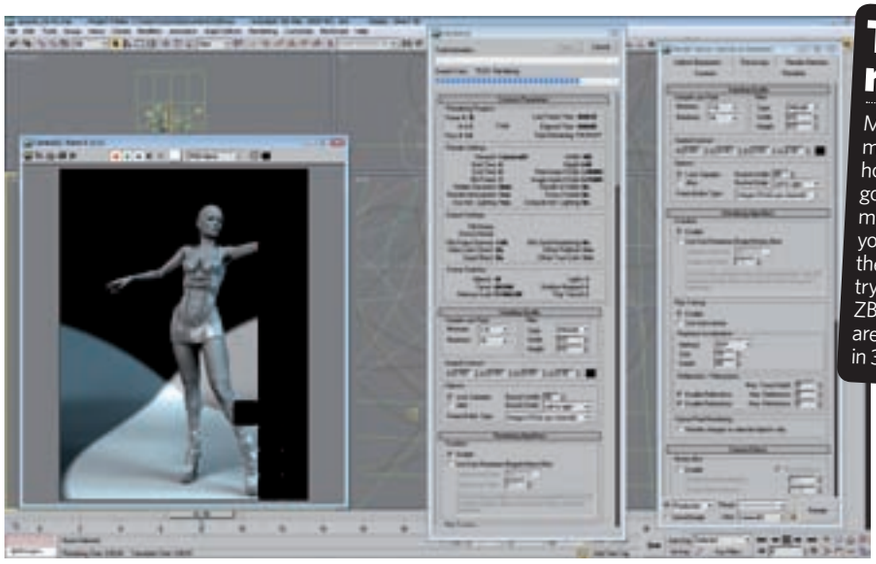
add edgings E. All of these add contrast and diversity. Now detach a piece of geometry from her head and apply Hair and Fur. Use combing and growing to give the hair form and flow F. When you're happy with the shape, extract the hair splines. Use scripting to use them as paths for mesh hair.

03 It's the eyes

The eye consists of two spheres. The inner sphere has two submaterials: one for the white of the eye, and one for the iris and the pupil G. Apply a mat material with some self-illumination or try using sub-surface scattering. The outer sphere is transparent and reflective.

04 Rig the character

Use Biped and Skin to rig the character, then paint the weights to get a working rig fast H. Select and adjust any individual vertices that don't follow the bones properly. Since



Test rendering

Making test renders while modelling helps preview how the whole process is going and what part of the model needs fixing. When you spot a discrepancy in the proportions, you can try to correct it either in ZBrush, where the tools are more fluid, or directly in 3ds Max.

Models

When the model is complete, run a few test renders from various angles and with different lights to check the polygon wireframe for any mistakes. Correct these and smooth out any flaws.

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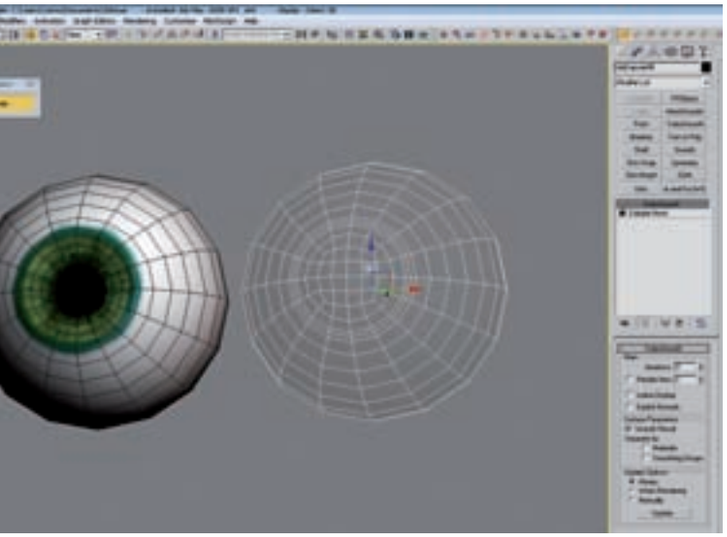
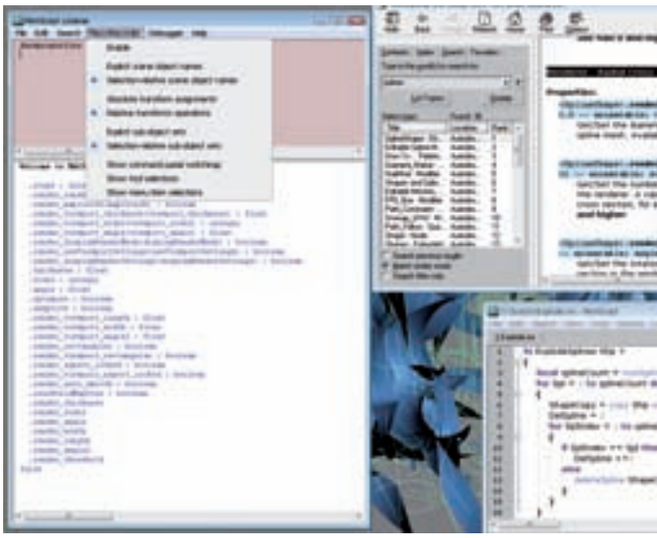


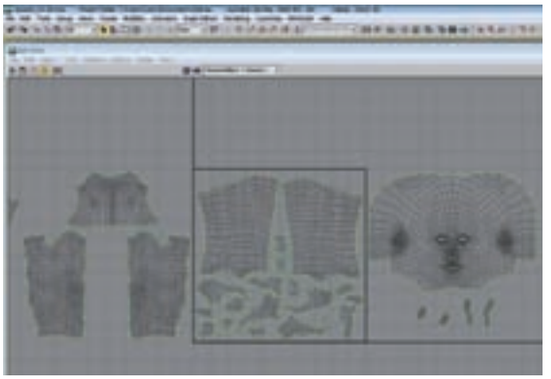
Scripting

Although scripting requires a certain amount of programming knowledge, it can't be any simpler in 3ds Max. You may not be a coder yourself, but there's the MaxScript Reference full of tutorials and examples. When you're in a situation that requires a lot of repetitive actions (challenging your sanity), it's a sign you need a script. Once we got the hair splines from Hair and Fur as a single object, we used a bunch of scripts to extract the individual splines and applied a mesh hair along each of them using PathDeform. Scripting saves time and is reusable.



G There are two spheres that make up the eye – one for the outer, and one for the iris

H Use Biped and Skin in order to quickly rig the model for movement



I When unwrapping the mesh, watch out for UV points going astray

her party dress is skintight, you could simply make an instance copy of the Skin modifier that's applied to her body.

05 Adjust the UV sets

This is a routine step and you have to get it right, especially when there are several applications in the pipeline. Unwrap the different parts of the body separately using the Pelt tool, and manually adjusting UV points that go astray I. A UV set fits into a single unit (0,1) UV space. The dress is a UV set. Working with UV sets allows you to paint several smaller maps instead of one huge map for the whole model. The body is divided into eight sets. Also, use a custom pattern with letters as a test map, to see if the UVs are flipped

06 Give the girl a gun

Presumably, laser pistols should look intricate so try to create that illusion. Model the handle from a box, using Poly Extrude and Edge Connect. The rest of the building elements are also modelled from simple primitives. Then use Symmetry and model just one half of the gun J.

J Don't waste time modelling the entire gun – just do half of it from primitives and then apply Symmetry in order to copy onto the other half

K By going to the effort of rigging the character, you can easily make any adjustments to the pose or, in fact, pose her in different environments to her current one

07 Pick the perfect pose

We could have posed the character from the beginning and skipped the rigging step, but having a working skeleton gives you the freedom to tweak the pose as much as you want and whenever you feel you need to change it. Use Skin Wrap to make the details follow the mesh underneath K.

08 Get the light right

Here, use standard three-point lighting. Place an MR spot

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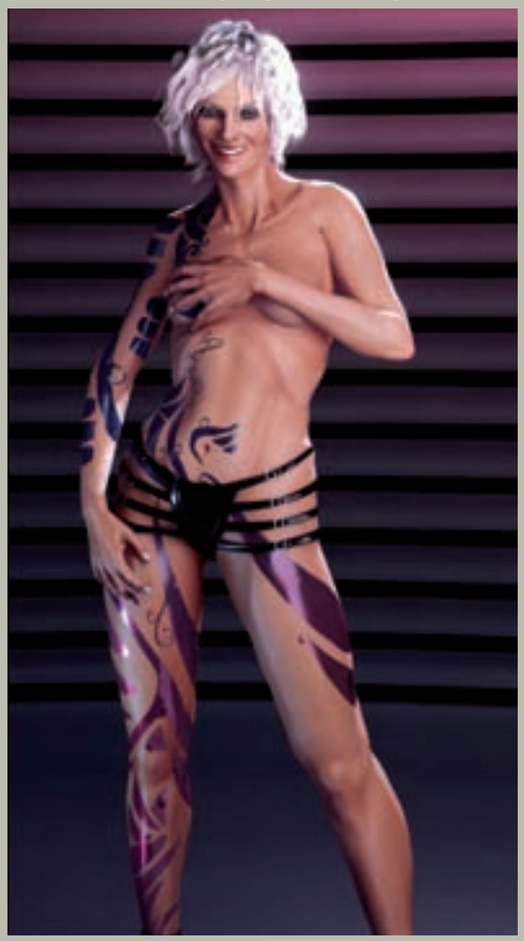
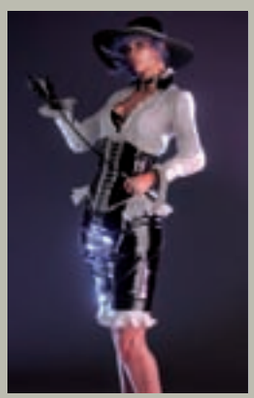
Artist Showcase

Plamen Iliev
A programmer by education and a 3D artist by profession, I love designing and creating characters.



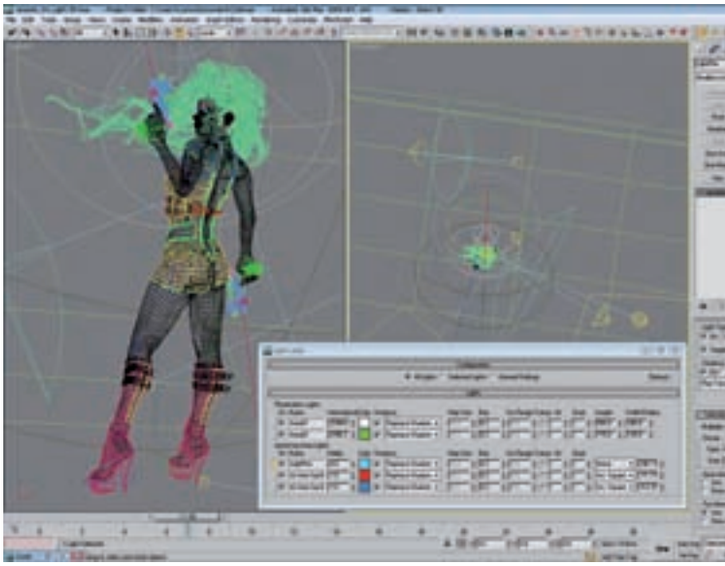
Smile **3ds Max (2008)** This scantily clad character was a personal project I did for anatomical study. I tried to explore the muscle and bone structure of the human body and experiment with skin shading and lighting



Countess **3ds Max (2009)**
A self-confident character, inspired by classical literature featuring contrasts

Roger **3ds Max (2008)**
This is the famous singer-songwriter Roger McGuinn, member of the The Byrds

> "Opt for procedural texturing of the hair. It consists of individual strands to which you need to randomly assign three slightly different shaders"



L Add key, spot, fill and rim lights to fully define the figure and produce lots of reflections off the shiny dress

Lighting setup

The lighting setup is a standard three-light spot arrangement. There's the key light, a spot for fill and a regular spot with high intensity above the character that illuminates the edges. A couple of additional lights will create more highlights on the dress. It is worth studying classic Hollywood studio glamour photography from the Thirties and Forties in order to get ideas for stunning lighting arrangements.

+ light with an area shadow that works as your key light, another MR spot for a fill and a regular spot light with high intensity and decay above the character as a rim L. A couple of kicker lights will give the image a glam look, too.

09 Wrinkles and shading

Load the dress in ZBrush and store a morph target before subdividing the mesh a few times. Then start carving in wrinkles at the seams and stress points M. Go back to the lowest level, switch back to the original mesh and extract a normal map with ZMapper.

Shade most of the surfaces with MR Arch and Design. This shader is capable of simulating all sorts of materials. Layer several copies of it with the shellac material and experiment with different settings for reflection. The skin uses a regular MR SSS shader with no textures at this point.

M Take the dress back into ZBrush and start carving wrinkles into the seam to give it life and detail

10 Good hair day

Opt for procedural texturing of the hair. It consists of

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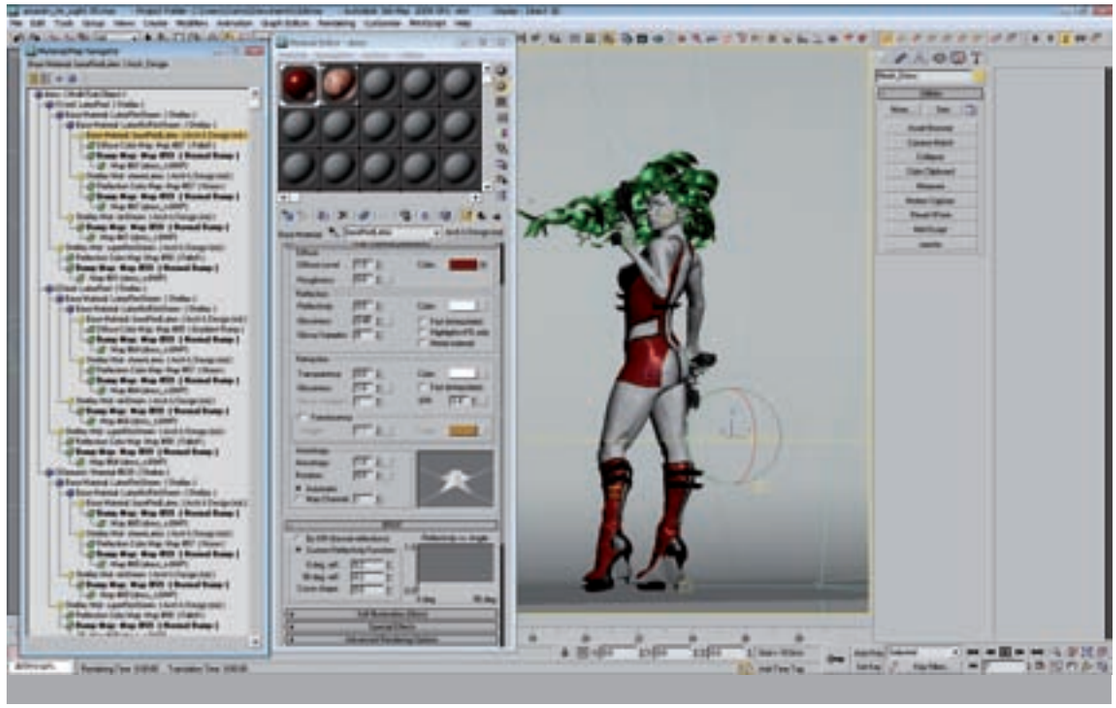
Textures

There are two ways of approaching this. The hair texture is created with the procedural technique, whereas the skin and face textures are painted directly to give a natural, slightly uneven finish, showing pores, etc.

N The hair texture is created procedurally. Create a gradient ramp with various shades of green and store it



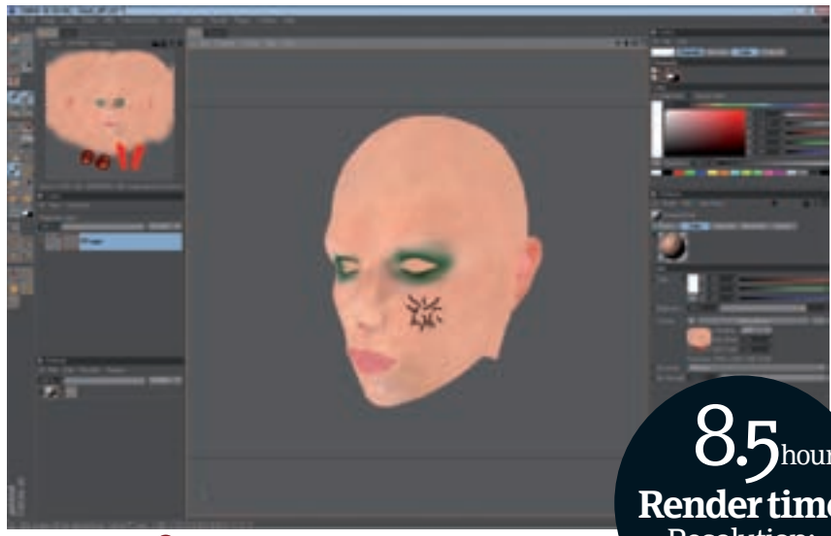
individual strands to which you need to randomly assign three slightly different shaders. Make a gradient ramp with various shades of green and store it in the Diffuse channel N. The hair draws its transparency from an opacity map, which is a blend of gradient and fall-off maps.

Render

mental ray is a very robust rendering engine because it's shader-based. Lots of its features are contained in chunks of code called shaders that come in many flavours. They control cameras, lights, materials and so on. For different reasons, some shaders are locked when you install 3ds Max, yet they are working and useful. Photographic is one such lens shader. Go to your Max installation folder and browse mentalray\shaders_standard\include. Make a backup copy of the M I files in case anything goes wrong. Open the files in Notepad and explore the shaders marked as 'hidden'. If you delete the tag, they become unlocked.

11 Paint the diffuse maps

Paint 4,000 x 4,000 diffuse maps for the body and face, then make specular maps to break up the reflection on the skin and a map for the back scatter parameter to limit the effect. A normal map is used for the face, adding finer wrinkles to her lips as well as pores O.



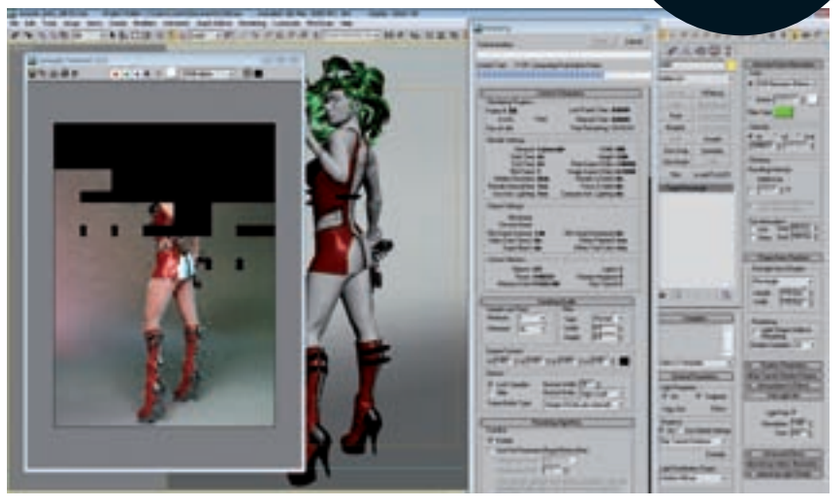
O The body and face skin contain specular maps to break up reflections and a map to limit the effect

8.5 hours
Render time
Resolution: 4,096 x 3,072

12 Render and process

The scene is rendered with Final Gather set to Low. Use Box filtering for preview renders here, but you may find that switching to Mitchell or Lanczos makes the image sharper. Use the Glare shader and the hidden Photographic lens shader to set the f-stop, film ISO and shutter speed.

Save the render as a 16-bit TIFF, then open it up in Photoshop and apply some dodging and burning where you need more contrast. Adjust the Levels and use a photo filter to slightly colourise the image. Experiment with different blending modes and filters, paint a vignette and then declare it complete.



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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Carlos Fueyo

3DArtistonline

Username: insomnia3d

Personal portfolio site
www.insomnia3d.com

Country USA

Software used 3ds Max, Fryrender

"As good old Ludwig Mies van der Rohe once said, 'God is in the details'. For me, this is particularly true when it comes to CG. I want to have as much detail as possible so that the viewer can be overwhelmed as they would be when looking at a photograph. Use details to help tell the story of your rendering. I usually make up stories that can help me find some rationality to the placement of objects and details in a scene, while this also keeps me entertained."

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www.3dartistonline.com
to view the art and chat to the artist

Software used in this piece

3ds Max | Fryrender

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Model, texture, light render and post-process

"Although the final scene is composed of many different models, I like to model each element on a separate file. I find this very helpful, not only because the software does not become overwhelmed with polygons, but it also allows me to archive the different elements in my model library for future use"

"The lighting was done using RandomControl's Fryrender Sky system, set to Miami's co-ordinates, along with an HDR sky to achieve better tone mapping on the rendered image. In post-production, a separate cloud layer matching the light source was added to give some depth to the sky"

"Over the years, I have become less of a fan of using tillable textures and box UV mapping. My typical workflow is to unwrap the meshes right after modelling and paint the textures in order to test the mesh and the quality of the texture. This allows for a great level of detail without the expense of polygons."

"I have really got used to modelling with smoothing groups. This allows me to create damaged areas and imperfections as well as soft corners without adding too many extra polygons. As long as your mesh is properly unwrapped, I can create all sorts of havoc without ever disturbing the UVs"

The Miami River 1930
2009

"All of the modelling was done by using many reference photographs of the existing bridge, while the rest were of the demolished buildings and miscellaneous objects. For the bridge, I took photographs from every angle possible, mainly concentrating on the structure details. I do not believe it's possible to have too many reference photos.

"My approach to rendering is to output as many channels as possible. This gives me more control over the final image and allows me to quickly modify colours, add depth, reflections, etc. Ambient occlusion is a must when adding more detail to the light solution and shadows. Material ID becomes very handy in colour correcting and grade (ie colour-correcting vegetation that otherwise would be impossible to pick from a Beauty pass). Finally, I always render any type of FX on a separate pass."

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Software used in this piece

Softimage Photoshop

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Step by step: Go wild with monkey fighting action

The Two Mighty Kings 2008

Modelling, shaders, rendering and Photoshop

"This is my latest work, *The Two Mighty Kings*, and was created for the CGSociety's 23rd challenge, Steampunk: Myths and Legends"

Jack Zhang is a character modeller who works for EA in Canada

The theme was locked in right at the beginning. I had to do an image based on a legend and give it the style of the steam age. Here, I combined the Eastern and Western legend into one. But that's not how I want to attract viewers. The goal for me is to create something that can visually impact the viewers as much as possible. Striking, that's the word. I don't want to hear people say, "Nice" when they see it – I want to hear them saying, "Wow!" as soon as they feast their eyes on the image.

I used Softimage for the 3D objects, mainly the characters, and edited the 2D environment with Adobe Photoshop. This short tutorial will briefly explain how I created the image from designing and posing the low poly models for rigging to rendering the final image.

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Jack Zhang

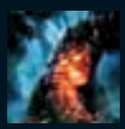
3DArtistonline Username Jackzhang

Personal portfolio site http://jackzhang.cgsociety.org/gallery/

Country Canada

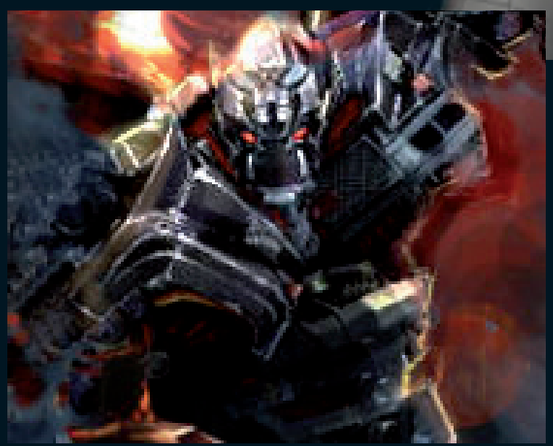
Software used Softimage and Photoshop

Expertise Character modelling



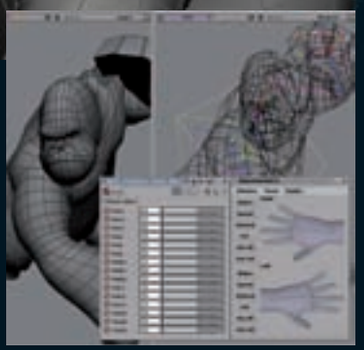
Concepts

Rough ideas to models



01 Concept I'm not very good at drawing, so I grabbed a couple of elements off the internet and put them together to make my concept. The idea was the Monkey King facing a giant monster. The concept helped me to nail down the composition, light and the pose of the giant character.

02 Low-poly modelling I started with modelling the big character. A giant gorilla is a nice idea, as I love *King Kong*. The reason to model a low-poly character is that I need to pose him as soon as I can. A high-poly character would be a pain to skin and pose.



03 Posing of the low-poly character I took a default rig in Softimage and modified it to fit. The enveloping was pretty basic; I knew that what I wanted was the pose, not the low-poly surface. I keyed the basic pose at frame 0, then the main pose at frame 1. I would model him at frame 0, then switch to frame 1 to see the result in-camera.

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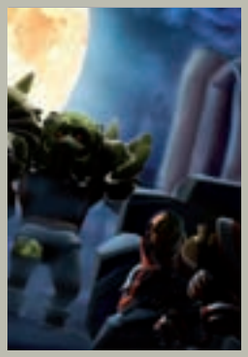
Artist Showcase

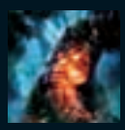
Jack Zhang

I was born and raised in Beijing, China, and moved to Canada 12 years ago. I've been working in the CG industry for close to four years, and currently work as a character artist for Electronic Arts in Montreal. I also taught in a private college as a modelling and demo reel instructor.

Little Run-away Princess
Softimage (2006)
Little Run-away Princess was my first personal work completed after finishing school back in 2006. It was created for CGSociety's 19th challenge, The Journey Begins. I received an Honorable Mention for my 3D work with this piece.

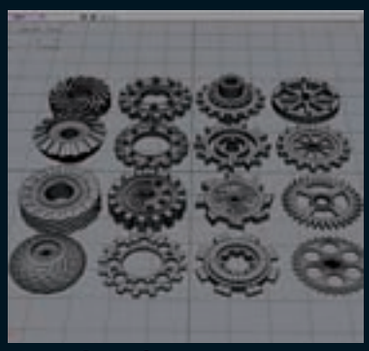


Hiding from the scouts
Softimage (2008)
My character here is in a sci-fi setting and is hiding from some ferocious alien guards as they storm past. This was a personal project that I undertook to improve my modelling, lighting and character creation.



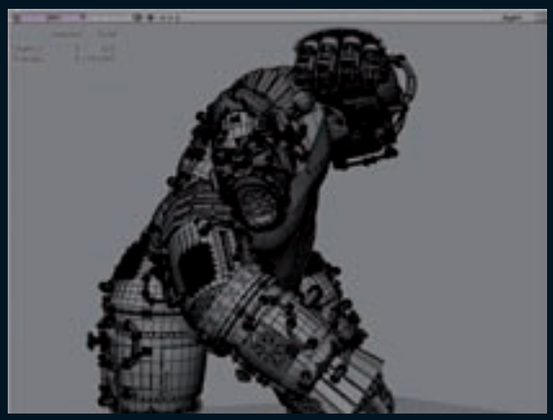
Modelling

Creating the component parts



04 Sets of gears Since it is a steamy mechanical character, I needed a lot of gears and pipes. I spent a night modelling a set of 16 gears and a few pipes. Designing those gears was actually quite fun. Those gears could be put anywhere on the character to make him interesting to take in.

05 Modelling the arm The arms took me a good five nights to model. According to my own concept, the arms, hands and the face were the most important parts of this character. I wanted to put as much weight as possible on the arms and hands so the viewer can feel the strength of my steamy Kong.



06 Come alive It took me about 15 days to complete Kong. Piece by piece, I added the gears onto him. This is a trick to share with anyone who needs to complete a 3D illustration in a short amount of time – if you don't see the area through the camera, don't make it. The back of Kong is still naked right now.

07 The environment After completing Kong, I started to look into the environment and colour. I had a huge struggle with those for a week. I was really frustrated until one of my friends pointed out a direction for me by painting over my work-in-progress for the post-production stage.

08 Don't unwrap this one Since I was in a challenge and the time was limited, I could not afford to take the traditional pipeline of 3D creation. Unwrapping Kong would take me ages since he weighs close to two million polygons. Therefore I decided to take a different approach by using shaders.

09 Metal shaders I created three metal shaders in Softimage using its Render Tree system. These three shaders are light and camera-based procedural shaders. In other words, if I move the lights or camera, the shader will look quite different. The great advantage of using procedural shaders is once I achieved the result I wanted, I could go to bed and let my computer do the rest of the work, while others sat in front of their screens spending the same amount of time unwrapping and texturing their characters.

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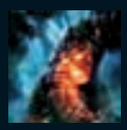
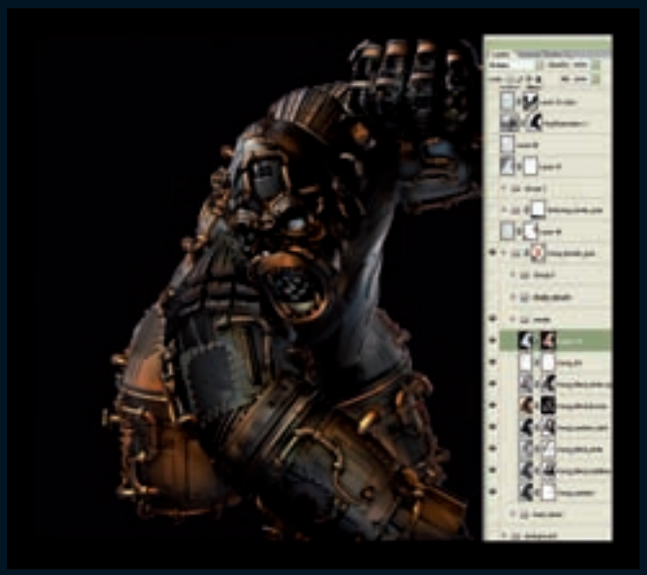


Final renders

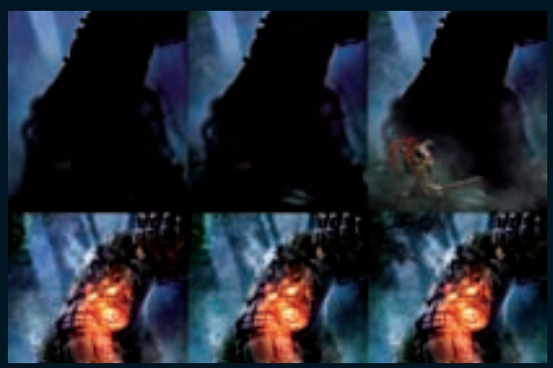
It's time for passes and Photoshop

10 Modelling the Monkey King
Although the title of the work is *The Two Mighty Kings*, I really set the focus on King Kong. The Monkey King didn't take me too long to make. I grabbed different parts here and there from my old projects and put together a very rough shape. I wanted the Monkey King to be small and blurry – to be honest, I was only really concerned with his silhouette.



11 Photoshop work By the time I received a total of 12 renders (two characters, six layers of render per character), the 3D work came to an end. And that's where I had to pick up the 2D mantle, with three main tasks to face. First, I composited the layers together by using masks to achieve the look of the metal that I wanted for my characters. Second of all, I painted the flame in Kong's eyes and mouth as well as the reflections from the metal. Finally, I painted the environment. This was completed over various layers to allow for easy editing if needed later down the line.

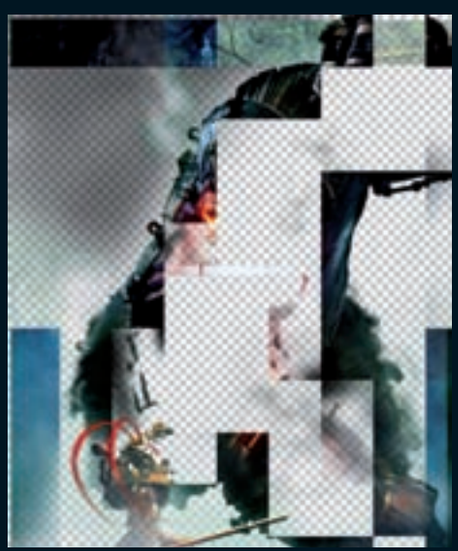
12 Flaming The first task was not a big deal, as I've done it many times before. However, the second task was my biggest challenge. I came from an engineering background, not art, so I can't paint! Well, at least I never seriously painted for full-resolution work. I spent the entire Christmas holiday painting again and again. Finally, I started to get the hang of it.



13 Evolving of the environment The image explains how the environment evolves from a black background to a full-resolution final quality. First I painted a very rough shape, then I used a few high-resolution forest images that I found on the internet to paste over. This was followed by some saturation changing and colour corrections. Eventually, I used some leaf brushes to paint leaves in the foreground.

30 hours
Render time
Resolution:
4,050 x 3,038

14 Nightmare When I was about to declare it finished, I had an accident. Somehow, the PSD file got corrupted during saving and my image was heavily damaged. Half of the layers screwed up and the other half lost their masks. I had no back-up files, except the one I made 15 days ago. So I took a cup of coffee and started to recover my work layer by layer. Basically, I didn't sleep that night but it was totally worth it. By some miracle, I made another version in five hours. I really don't know how I did that and I definitely don't want to test my ability in such a way ever again!



15 The Two Mighty Kings So here's the final work of *The Two Mighty Kings*. I used a large area of cold blue, green, purple and black to give the forest a quiet and spooky feel and look. The small area of red, orange, yellow and white represents the high temperature from Kong's burning core. Those small hot areas also help the viewers to quickly focus on Kong's face when they first glance at the image. Can you hear the mighty roar from Kong? I hope you enjoy the image and finish the battle of the Two Kings.

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Thomas Haas-Christensen

Personal portfolio site www.thomashaas.dk

Country France

Software used Maya, mental ray, Mudbox, Fusion and Photoshop

Composition, lighting, render & post production

"I had various thoughts on where the eye should look. The eyes express state of mind and emotion. I ended up having it look at the POV for better connection to the viewer"

"Using a Desaturation filter makes the tent look old and dirty. Adding blue and using a good amount of blur on the background gets the elephant centre of attention"

Using a hard edge on the elephant's trunk was a deliberate idea from early designs. It put contrast into the model

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"There is a slight amount of glow on the highlights. This is done in Fusion using the Highlight Glow tool"

"To make the composition a bit more interesting, I added the blurred foreground. It was rendered as a separate pass and blurred in Photoshop"

Software used in this piece

3ds Max

Fryrender

"The volumetric light is rendered in mental ray and post-processed in Photoshop. Also, dust particles were painted and blurred in Photoshop"

Sad Elephant 2009

"The idea was to get an old elephant who has spent his days in the circus and have him performing a menial trick. I exaggerated his sad eyes to give him a really mournful look. There are quite a few special effects going on, starting with a quad set of lights pointing up and down from the corners. This was to give the image a theatrical feel. There's a shallow depth of field so that the viewer's full concentration is on the elephant. There are lots of dust particles in the atmosphere, which were added in Photoshop."

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> Although I didn't keep track of my time, I estimate it took between 300 and 350 hours over almost a year. And it was worth every minute

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Step by step: Create a Pixar-style garage scene in Maya

Tot Rod 2008

> *Tot Rod* depicts the pride and joy of a young petrolhead who has moved beyond his early attempts at automotive excellence
>
> **Lance Hitchings**, graphics designer

Model, texture, light render and post-process

***Tot Rod* was** created to breathe life into memories of growing up in Middle America in the Fifties and Sixties. The joy of my first ride, a '57 Chevy kid's car; the cool darkness of a garage on a hot, hazy day; the fun found in the rich fantasy life of a child. This tutorial provides an overview of the process, stepping through the stages from original concepts to the final composited image. This process consists of four stages: blocking out the composition, building and texturing all of the objects in the scene, setting up the lighting and renderings, then compositing the final renders into a single image.

This type of project calls for the skills of a 3D generalist, an artist with a high level of skill in most of the facets of 3D work. One must be an expert at modelling, UV mapping, texturing, building shading networks, lighting, rendering and compositing. All of the 3D work was done in Maya and the texturing and compositing was done in Photoshop.

The two largest challenges in completing a project of this scope are managing all the assets, including over 2,000 objects, 1,000,000 polys, 160 materials and 258 textures, as well as staying motivated over the course of the project, which, although I didn't keep track of my time, I estimate took between 300 and 350 hours over almost a year. This tutorial will take you through all the steps that went into creating *Tot Rod*.

Software used in this piece

Maya Photoshop

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Lance Hitchings

3DArtistonline
Username: lhitch

Personal portfolio site
www.hitchingsdesign.com

Country USA

Software used Maya, Photoshop

Expertise I excel at producing photorealistic images, particularly of hard-surface objects. Most of my projects are product illustrations

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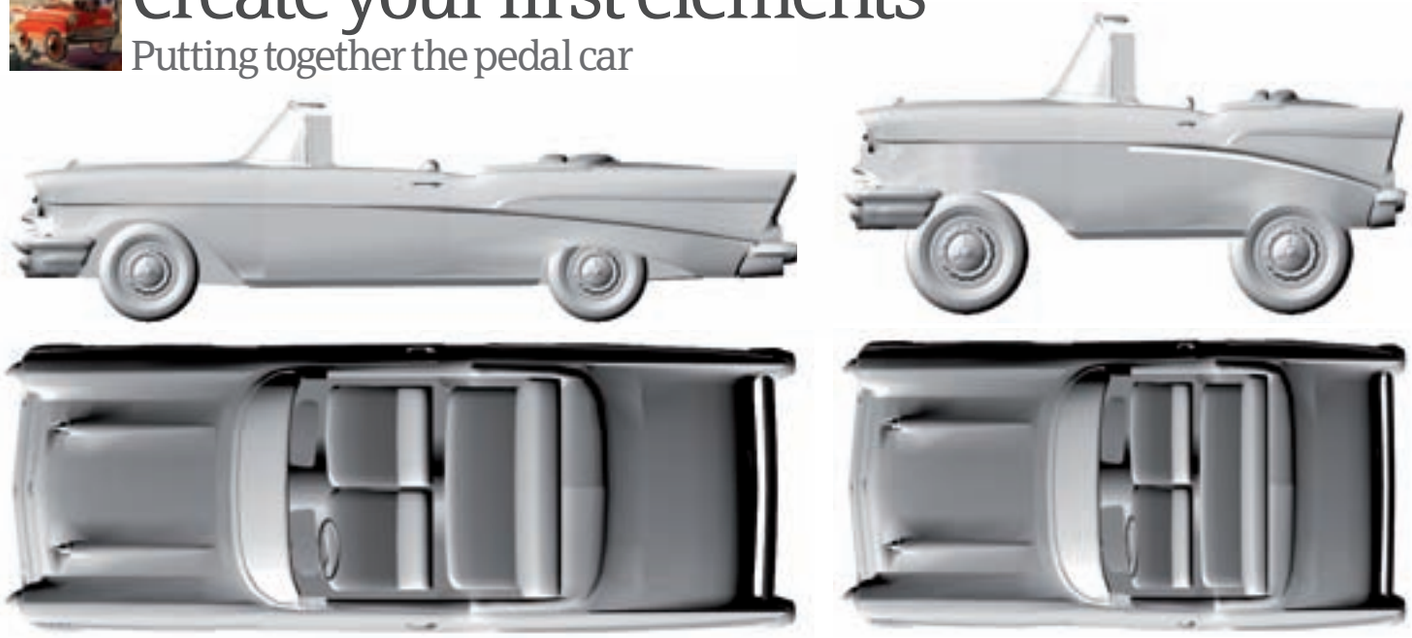
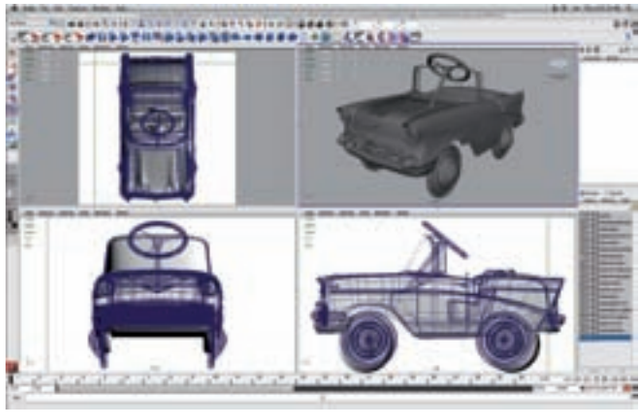
Create your first elements

Putting together the pedal car

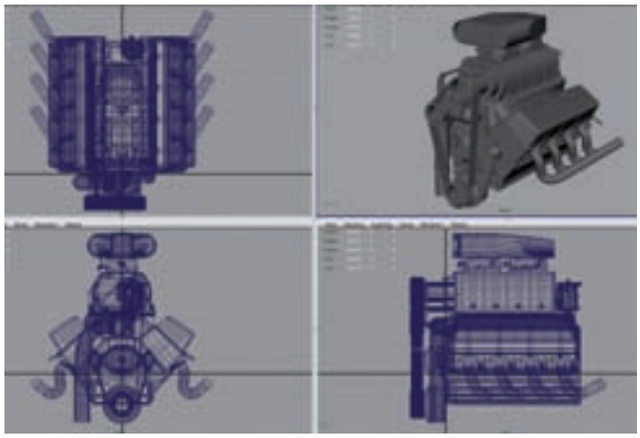


01 I started *Tot* *Rod* by building the car first. I had an old model of a '57 Chevy convertible that I decided to use as the basis. I rendered the front, back, top and side views, which I then brought into Photoshop. I adjusted the proportions of each shot to fit the proportions of the kid's car. These adjusted images were the templates that I imported into the image planes of the top, front and side orthographic cameras.

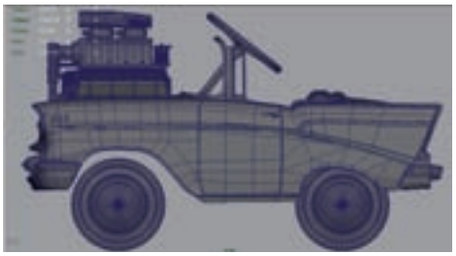


02 With the template images of the kid's car loaded into the image planes, I then rebuilt the old model of the '57 Chevy. The passenger compartment and the back deck were shortened, the height of the body and the windscreen increased, a large steering wheel and appropriate wheels and tires were built, and a hole was created in the hood to allow for the engine.

03 Before building the engine, I needed to collect resource images. In addition to images of complete engines, I also collected images of the individual components, since each component was built separately.



04 Using the engine photo scrap, I then built the engine. Using templates wasn't really practical at this stage; I started with the engine block and just 'eye-balled' it. I then built each of the following components to fit onto the existing components.



05 Next, I fitted the engine to the car and tweaked the hole in the hood to get a good fit. At this point, both the car and the engine were low-res, with a combined poly count of less than 60,000.

06 At this point, I increased the resolution of the car and the engine. I extruded the edge of each body panel inward at an angle of 90 degrees, and bevelled the resulting corner. I then converted the polygon model to a subdivision model, tweaked that and converted back to a polygon model using the Adaptive mode. The polygon count jumped up to about 260,000 polys.

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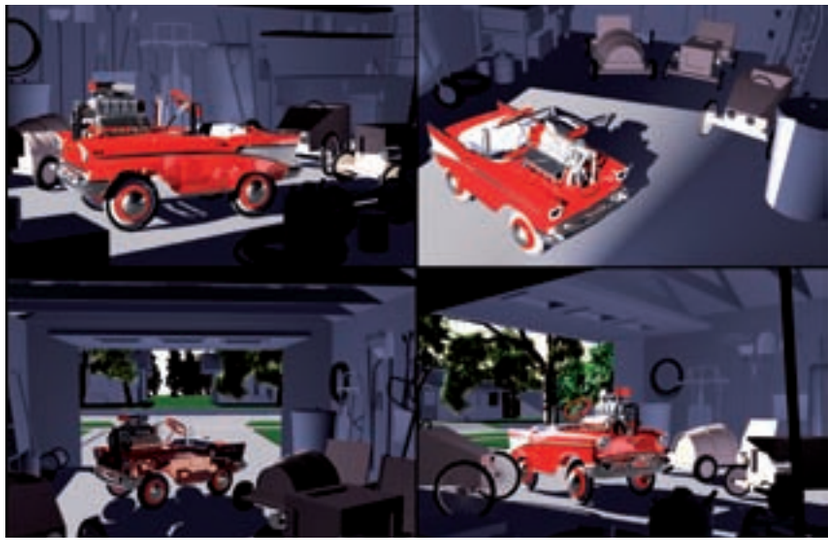
Fill the scene

Roughing out the garage and contents

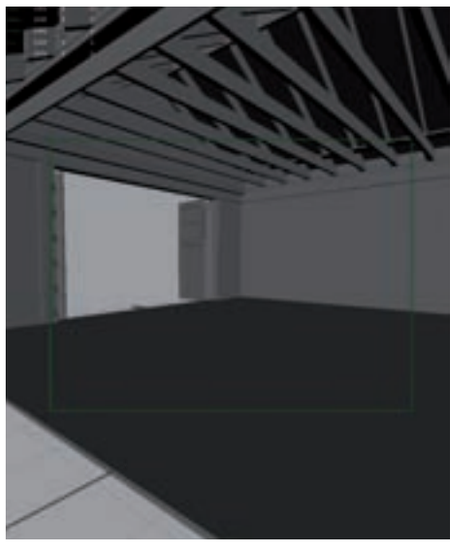
07 It was now time to start building the rest of the scene. Again, the first step was research. I had a pretty good idea of how the scene was going to look, and all of the objects in the composition. I wanted a retro look, with everything looking old and used. The search was on for old garages, craftsman-style houses and all the junk you would find in a garage.

08 Then it was time to start blocking out the scene. I started with very primitive, low-res models that I would later replace. These were built very quickly to allow me to start trying out a variety of different compositions.



09 Here are a few of the different compositions I tried. I wanted to look out of the garage and see the street, but I also tried some compositions that just showed the interior. The bottom right image is the composition I settled on. Here, I was thinking of going with a retractable door on the garage and three racers.

10 As the camera's POV is from outside the garage, it had to be built with a missing wall. In reality, it is there as a separate textured object, just invisible. This came about by deselecting Primary Visibility from the wall's Render Stats in the Attribute Editor. The wall still cast shadows, was visible in reflections and was included in the global illumination and Final Gather calculations.



Artist Showcase

Lance Hitchings

I started using 3D as a hobby in the early 90s, and did my first professional illustration in 2000 for Nikon. It decided to use the design as the template when it repackaged its Sports Optics range.

Saleen S7 (2008) What can I say, I'm a petrolhead at heart. This image was built for no other reason than to do a photorealistic render of a supercar, and the Saleen certainly fits that bill.

Watch (2006) This image was done when I was building up my portfolio with product illustrations. The watch was pretty easy to build. The texture and displacement maps were much harder.

Monarch 36mm ATB (2004) One of the many illustrations I did for Nikon. The original binoculars had a green rubber shell, but Nikon also had a product line it was producing with Realtree.

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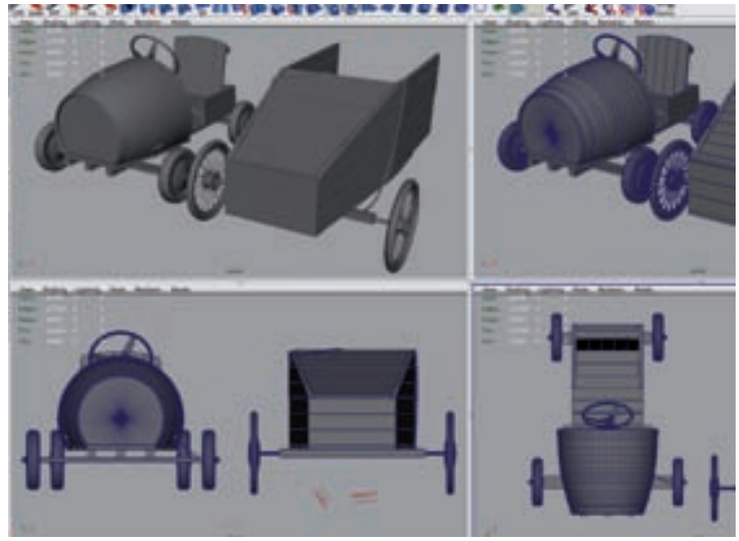
Improve the neighbourhood

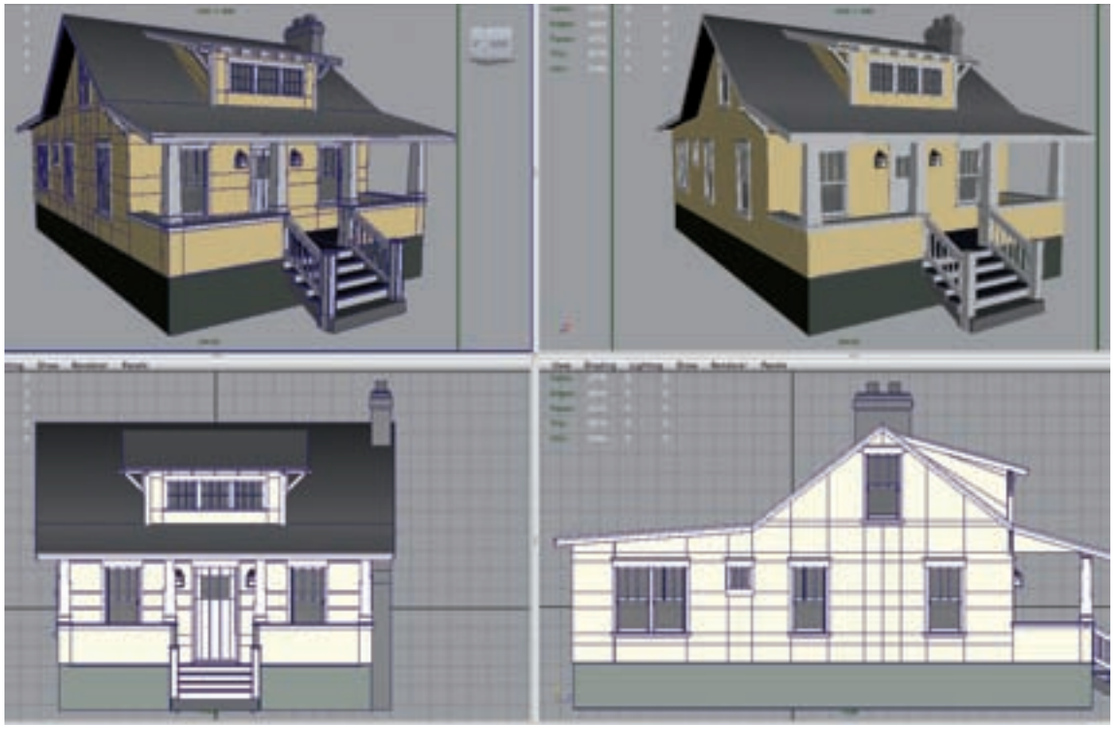
Adding to the content inside the garage

Modelling

Because this scene wasn't going to be animated, only the portion of the older, wooden racing cars that could be seen needed to be modelled. The other areas were left undeveloped. Each individual object in the garage was also modelled separately. It would save you time if you already have a library of mundane objects like these that can be given a fresh texture and made to look different.

11 With the garage built, it was time to start populating it. Using the low-res models as a basis, I built new, high-res models of all the objects that would be in the garage. Thanks to the blocking process, some items I thought would be in the garage had been scrapped, while others were added. I was now working from a pretty accurate list.

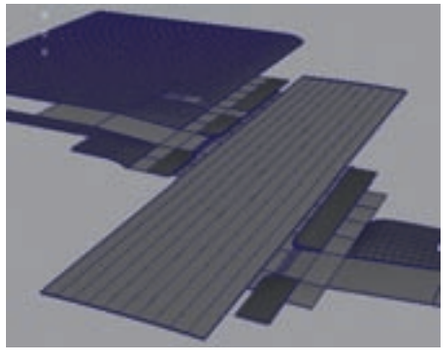




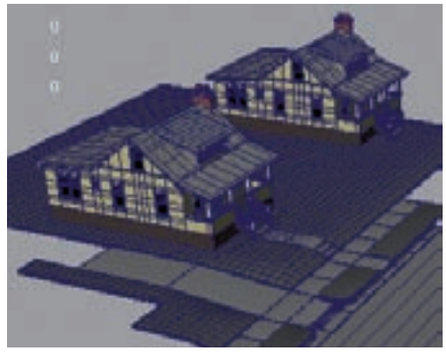
12 After the miscellaneous items were built, I then moved on to high-res versions of the soapbox derby racers. I had originally thought there would be three, but decided on a composition that only used two. Blocking also allowed me to only build those portions of one racer that would show in the composition.

13 Next was the house. The low-res version turned out to be pretty accurate, so instead of rebuilding, I simply improved that version. Since the house is across the street and quite small in the composition, I didn't need anywhere near the resolution needed for the objects in the garage.

14 The process of building the street, the pavement, kerbs, driveways, steps, etc, was another task made much easier thanks to the earlier blocking process. Although again I only built those portions actually visible in the scene, more resolution went into these objects than into the house.



15 At this point, I was ready to start bringing all the pieces of the scene together. I started by positioning and sizing the street, garage and houses, and placing the camera in the final position. I then decided to add a second house. Since only the front half of one house and the back of the second could be seen from the camera, I reused the same house.



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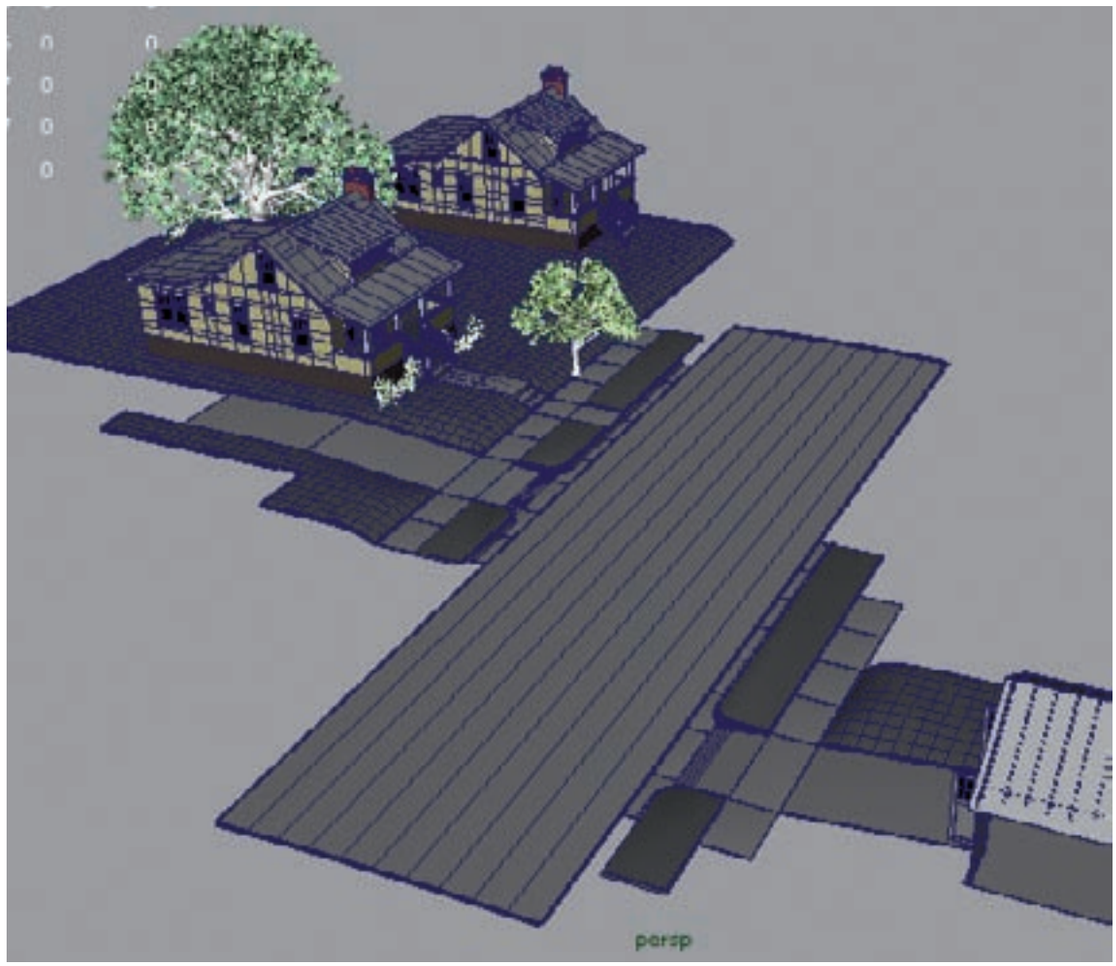
Time to start mapping the textures

Bring forth the UV projections and maps

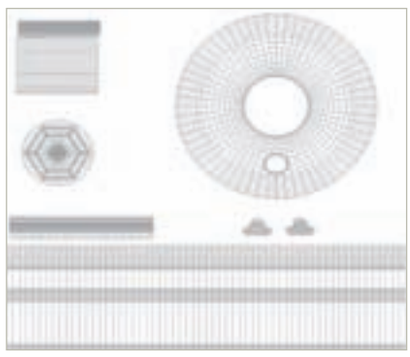
16 **Next came the** trees and shrubbery. I used Maya's Paint Effects to build all the foliage, selecting trees and bushes from the plantMesh and treesMesh sections of the Visor. I then converted all the foliage to polys.

Planar UV projections

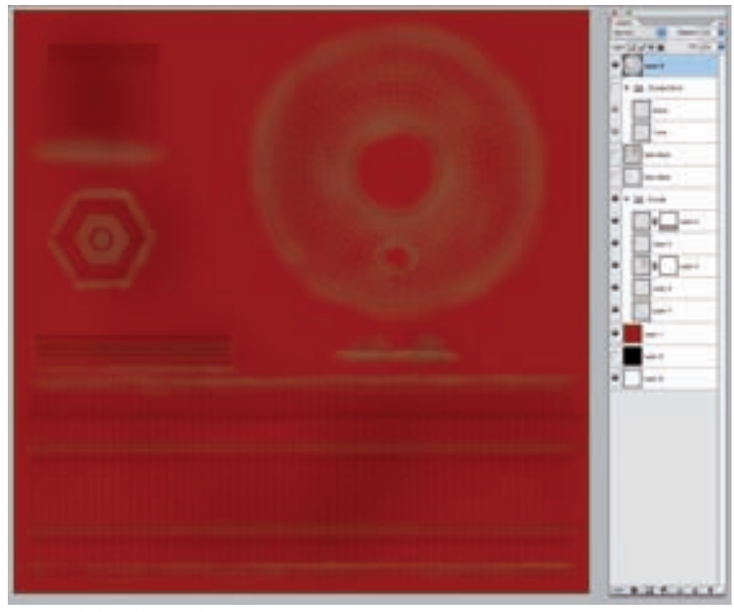
The thing to keep in mind with planar UV projections is vertices that lie on the same axis as the projection will end up stacking on top of each other, and will share a single pixel in the texture map. Expand those vertices out to create space on the map for all the faces in the mesh.



17 **UV mapping – the** most tedious process of all. I usually try and keep it simple, and start with either a planar or a cylindrical projection and work from there. I also try to keep all the projections for a single object on a single map. Export a UV snapshot in a PSD format, then start building the textures. I've decided to use the UV maps and textures from the petrol can, since it's a pretty good representation of the process.



18 **The first step** in texture mapping is to prep the UV snapshot file in Photoshop. I'll load the Alpha channel, which is the UV map, and fill with a contrasting colour (usually red but grey in this case, as I'm building a red texture) on a new layer. I'll keep this layer on top, and it serves as a template for building all the layers of the texture map.



19 **Using the UV** map for the petrol can as a template, I started building up the layers for the texture. A red layer for the paint and several layers of dirt, grease and dust that had settled on the top of the petrol can.

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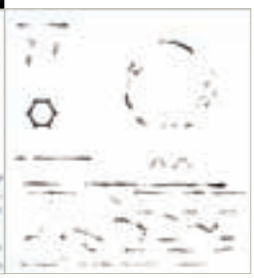
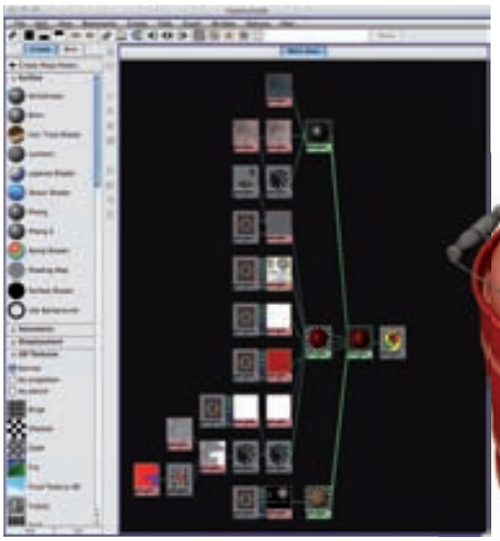
Get the final details right

Adding paint, dirt and dust through layers with specular and bump maps

20 **Having kept all** the paint, dirt, dust and grease on separate layers, I used these layers to build transparency, specular and bump maps that would be used in a layered shader.

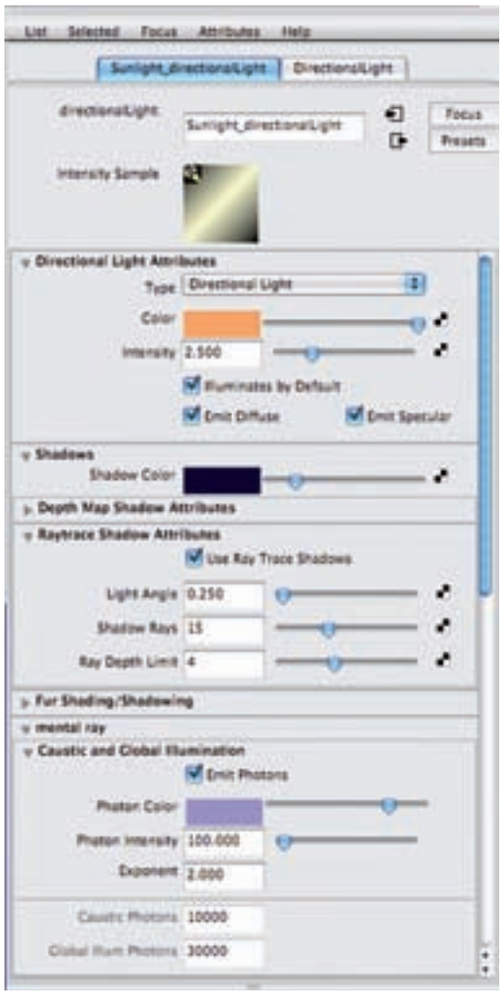




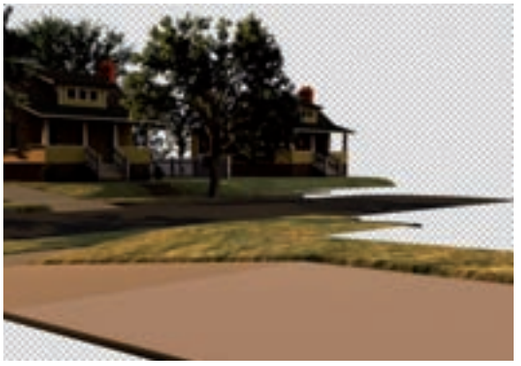
21 **I used a** layered shader for the petrol can because I wanted metal showing beneath the paint where it had chipped or worn off. I used a blinn for the metal as the base layer, a blinn for the dirty, red, chipped paint on top of that, and a lambert for the dust as the top layer.

22 **Here's the petrol** can shading network applied to the petrol can, rendered with Maya's software renderer without any special lighting.

23 **The last step** of the modelling phase was to place and size the Tot Rod, the soapbox derby racers and all of the garage paraphernalia. At this point, I was ready to begin lighting and set up my rendering parameters.



24 **While concept and** composition tell the story, lighting is what sets the mood. I wanted it to feel like a long, hot and hazy summer day was drawing to a close, but that it was cool inside the garage. I decided to go with Direct Illumination, Global Illumination and Final Gather. A single directional light provides the sunlight, and the garage is lit with photons bouncing around inside after entering through the door, rendered with global illumination. To get the sunset colours, the primary colour of the light is orange, the photon colour is a light violet and the shadow colour, although it looks black, is actually a deep purple. An IBL node with an HDR image of an outdoor park on a sunny day is used for the Final Gather component, and provides the ambient illumination outside, with a small amount entering the garage through the door.



25 **It became obvious** early on that the only way to achieve the result I was looking for was to composite multiple renders in Photoshop. This decision drove the way the project was built and organised. Objects were separated onto layers based on how they would be rendered. Some objects, such as the entire street scene outside the garage, were rendered separately.

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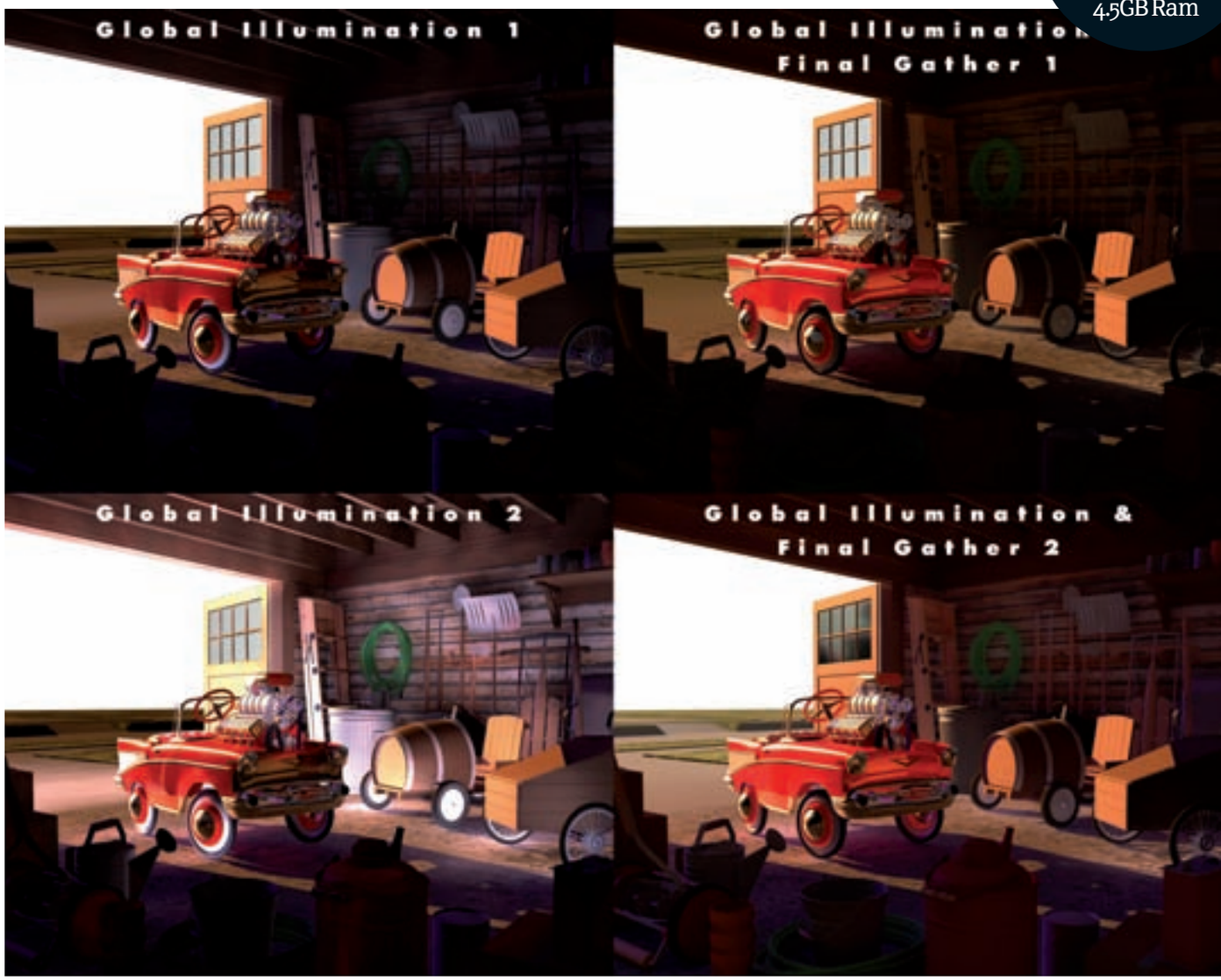
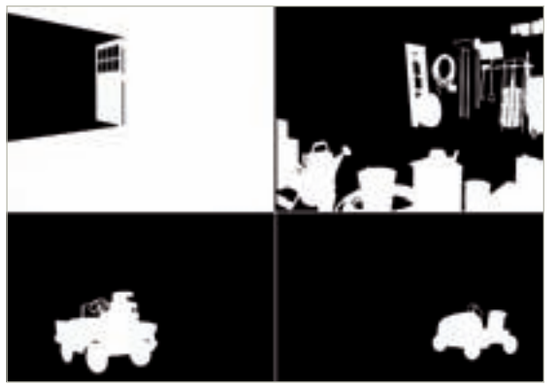
Render different light options

Multiple passes were used to create different lighting effects

8 hours
Render time
RES: 3600x2800
Mac G5 Quad
4.5GB Ram



26 Inside the garage was more difficult. I did four primary renders of the inside: two GI renders with different settings, and two GI and FG renders with different settings. This gave me a range of different lighting options that I could use in the composite. As you can see above, this process began very early, before the final textures had been built for most of the objects in the garage.



27 While I wanted different objects as separate layers in Photoshop, they needed to be rendered together so that all surfaces would be included in the GI and FG calculations. The solution was to turn off all layers but the one I wanted, then do a quick software render. This gave me an Alpha channel I could use to knock out the object in Photoshop.

Lighting

Here, you see the basic settings I used in setting up the lighting and the renders. The Light Angle and Shadow Rays setting for the directional light caused the shadows to soften as they got further from the object casting them. Photon Intensity was the setting that changed the most, ranging from 10,000,00,000 to 25,000,000,000. GI Photons remained constant at 500,000. The settings for the IBL node were pretty simple: Color Gain was set to 1.0 and Color Offset was set to 0.5.

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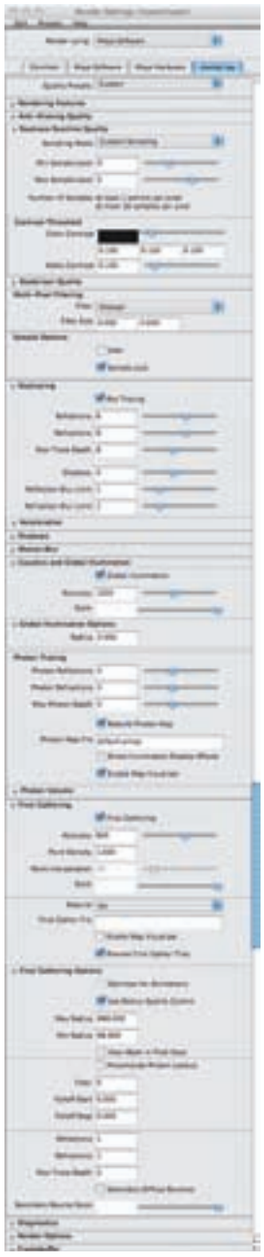
Put it together in Photoshop

The final stage was to composite all the layers

28 **The render settings** remained pretty constant throughout the project. To achieve high-quality anti-aliasing, the Min Sample Level was 0, the Max Sample Level was 2 and I used the Mitchell filter for Multi-Pixel Filtering. Raytracing was on, but I kept the Reflections and Refractions set fairly low to save on resources. Accuracy for both GI and FG was the result of a great deal of experimentation, and the Max and Min Radius is based on the scene's physical size.

29 **With the various** renders and masks created, it was finally time to start compositing the image in Photoshop. Here, you see one of the earliest composites, again before textures. In the Layers palette, you can see how the different renders were built up. A nice sunset photo to provide the sky started it off at the back. Haze layers were added to the background and many of the renders had adjustment layers added to tweak the brightness, contrast, hue, saturation, etc. At this point, which was about halfway through the process, I was starting to get a real good idea of what it was going to look like.



Rendering

Tot Rod was built and rendered in Maya version 8.5. Since then, a number of changes have been made to mental ray. This is where I would make the most changes if I were to render it out today. I would turn off the Radius Quality Control option and use Point Interpolation instead. I would also turn on Secondary Diffuse Bounces and set the Diffuse Bounces to 2 or 3. This adds more realistic light and colour bleeding, and prevents unnatural darkening of the corners in the scene. You can increase the amount of light with the Secondary Bounce Scale by overdriving the Value (V) setting in the colour selector.

30 **Here, you can** see one of the early composites after textures had been applied to all the objects in the scene. In addition to the textures, the angle of light coming in the door of the garage had been altered, and the trees rearranged.

31 **Five or six** versions later, we arrive at the final composite. A number of changes have been made, including new textures for the floor, both racers, the stepladder and the door. Additionally, there's a very different feel to the lighting – the back wall is more in shadow but the implements stand out more. The front row of implements and the front of the Tot Rod are lit differently as well. Over 25 separate renders were used, and as you can see from the Layer palette, the final composite is much more complex than the originals.

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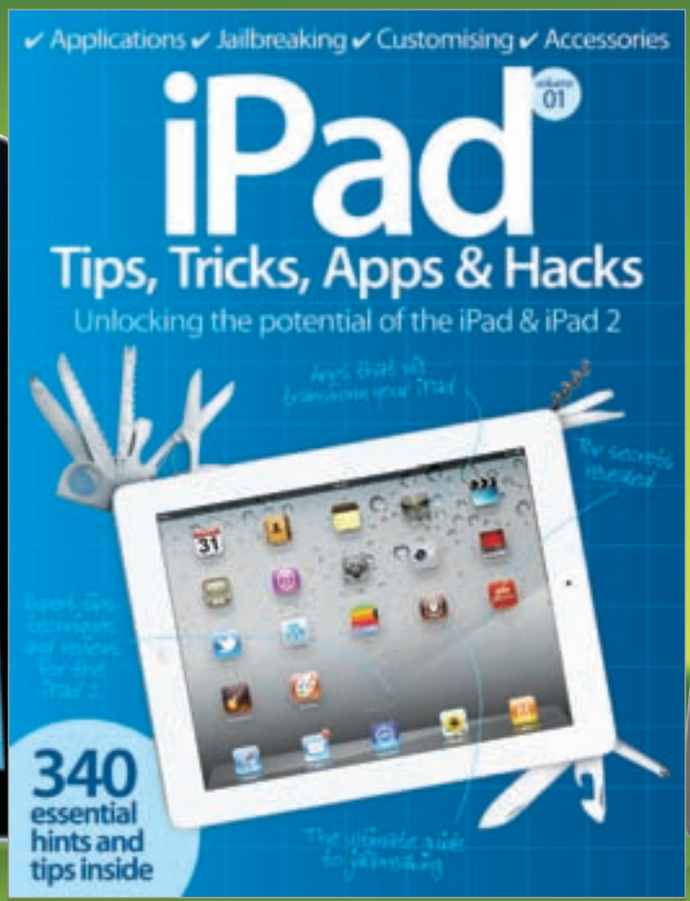
iPhone
Tips, Tricks, Apps & Hacks
The insider's guide to unlocking the potential of the iPhone
340
essential hints and tips inside

iPad



Printed full colour large format book

Kindle

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behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info

Yuriy Mazurchuk

Personal portfolio site http://yur3d.cgsociety.org
Country Ukraine
Software used 3ds Max, Mudbox, ZBrush, BodyPaint 3D, Photoshop, mental ray
Expertise Modelling, lighting, texturing, materials

Modelling, texturing, rendering

Create an elegant room in 3ds Max

Table and Chairs 2007

"An important part of this work is the open window, with the sun passing through the curtains. The wind blowing the curtain adds to the realism"

Yuriy Mazurchuk on the inspiration behind his freeze-frame rendering of an elegant lounge

A The teapot on the table was based on one on the artist's own living room table

This image was created in 2007, with work on it lasting about six months. The primary goal was to create a photorealistic picture of a house interior from scratch without re-creating an existing room. All the furniture in this image was separately modelled and created by me. All the materials and shaders were created in 3ds Max, while the textures were created in Adobe Photoshop.

An important part of this work is the open window, with the sun passing through the curtains. The wind blowing the curtain adds to the realism. A sideboard is filled with plates, vases, stemware and other glass objects that would exist in a real room. The sideboard has been left slightly open, suggesting that there were people here but they left the room for a minute. The teapot at the table A was based exactly like the one on my kitchen table in my home. The view outside the window is a picture – literally, as I actually took this photograph from my own window. The colour of the furniture, walls and other objects was specially selected to give the viewer a feeling of cosiness, comfort, tranquillity and warmth.

01 Create the table and chairs

Create a spline for one of the tables with ledges and indentations on each side B. The supporting point of the spline must be at the end of the spline in the centre of the rotation. I applied a Lathe 360 degrees modifier to a spline and the upper part of the table. The basic support of the table is a figure of rotation, and you can create it like the upper part of the table. You can add other parts to the legs to make them look more beautiful, then select Clone>Massive 4>360 degrees. To create a support leg for the table, go to Spline>Path and Shape>Loft>Deformation>Scale>Twist. Then make four copies, rotating them through 360 degrees C.

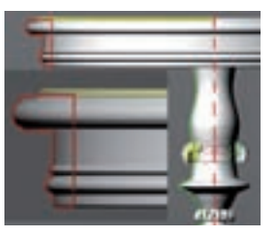
To create the leg of the chair, go to Spline>Path with curves and roundings. First, we build a spline, point after point. A spline consists of the direct cuttings from the polyline. Next, adjust every point on the leg by using Beziers and fine-tuning in 3ds Max. Adjust the smooth transitions accurately and along a spline a form will pass. A spline is also a form of a cross-section. Apply a Compound Loft then apply a Scale Deformation to the form to make it more cone-like. Twist the object to get a twirling effect.

Software used in this piece

3ds Max 8 | V-Ray 1.43 | Photoshop

02 Lay the floor

The floor looks how I wanted it to look, with plenty of wear. I think my work looks more realistic because of it, but I spent a lot of time to get it that way, using bump maps, reflection maps and diffuse maps. The pattern and design of the



B The first thing to do is to create a spline for one of the tables so that the indentations and ledges can be modelled

C To create extra parts of the four legs at the bottom of the table, simply duplicate the one you have already created four times

Models

Every single object in this amazing scene was modelled and created by the artist. Some were based on objects in his house, others on objects from catalogues or photographs of up-market rooms.

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Textures

To get the worn yet highly reflective look of the flooring, three maps were created – one was a bump map to get surface texture variation, another was a reflection map to get the shiny finish and the last was a diffusion map. The shader for this material uses fall-off light to make it look like a picture.

floor was chosen to give a typical realistic effect. The shader used a brown colour to get the right kind of effect from it.

Wireframe

There are those that say modelling, arranging, texturing and rendering in 3ds Max is quite hard, and they'd be correct. You can make life easier for yourself if you keep a library of all the objects you create so that they can be reused in scenes like this without having to make them from scratch.

03 The little table

This table contains two levels. In the upper part of the table, there's an opening through which the vase has been placed. So this little table doesn't look like an ordinary table, and it's one of the first things to start modelling. Go to Spline> Lathe>Scale X. In order to create the table legs, go to Spline Path>Spline Shape>Compound>Loft and then select Deformation Twist.

04 Construct the dresser

The large dresser occupies the most space in the picture, so it must look beautiful and original. The dresser was created from a Box primitive, but the upper part was created by using Geometry Path>Shape>Loft D. In the middle and lowest part of the dresser is a carving to make it look more beautiful. With the carving design, the dresser looks more attractive and it lends it an additional charm. The carving was created by modelling it and then using Polygons>Smooth.

> "With the carvings, the dresser looks more attractive and lends an additional charm to the scene"

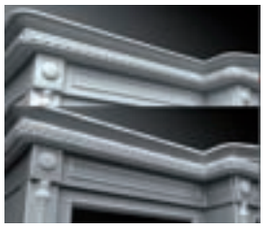
05 It's curtains for you

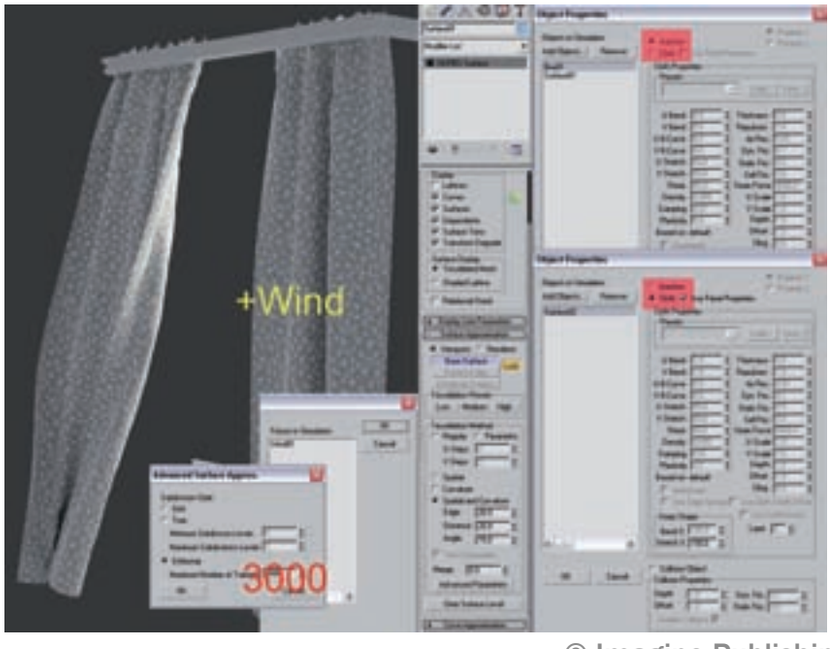
The curtains were created with NURBS objects E. The effect of the cloth swaying in the wind requires a Modify Cloth modifier. We can start by creating the NURBS surface in the front view. Use a setting of Point Surface 4 x 6 and add Modify Cloth. This increases the density of the polygons and turns them into triangles. Create a box above the curtain and attach the upper polygons to it using a link and the sim node. They'll stay inactive when you begin the simulation and will stay in place. Select a curtain then add the box and the wind to the list of Objects in Simulation. Create the group by following Sim Node>Attach To Box>Start Simulation>OK.

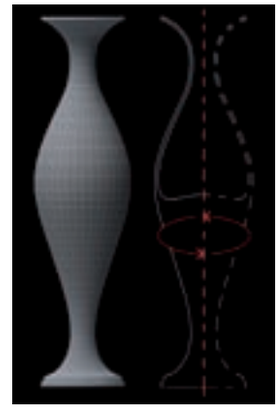
06 Model the teapot and vase

The geometry of the teapot is complex. Modifying the surface will help us to handle this. First, create a circle. The radius of the circle is the radius of the teapot. Set the amount of points in the spline to equal 20. Copy (by cloning) ten more splines. Position them one above another, and scale them so that they look like a teapot. And there's one important thing – you should attach them only by number, from 01 to the last one in numerical order. So follow Spline01>Attach Spline02>... right up to Spline 10. The next step is to apply our geometry to a cross-section (ie smooth) surface. The cover of the teapot can be created the same way, then the other elements of the teapot can be added.

D As the largest object in the room, aside from the floor, the dresser is the most important so it's worth taking the most time to create this. It was started with a simple Box primitive and modelled from there, including the carvings on the front that add to the attractiveness of the design







F This is another vase, which can be created by making a new spline then rotating it so the Bezier dots are in the front view so they look like a vase profile. It can then be edited to form a vase shape

E This is where you can link the curtains to the object box above them. The wind animation routine can then be linked to them all and it will disturb them in a realistic fashion

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> “Behind the window there’s just a photo. If you want, you can make it in Photoshop”

Lighting the scene

As this is meant to be illuminated by the sun from outside, there’s a V-Ray plane placed in window frame. This is invisible so you can’t see it. Just feel the effects from the lighting over the scene. The shadows were set to be on and directed on all surfaces so that the light source would cast sharp, realistic shadows from all the legs of the furniture. A photo was placed over the window to give the impression of where the light was coming from. The V-Ray light plane had a blue cast, while the interiors had a yellow one.

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Artist Showcase

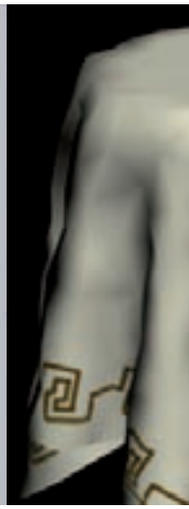
Yuriy Mazurchuk

Yuriy is a talented 3D artist, living and working in the Ukraine. His passion is fast cars.

Motion **3ds Max, V-Ray (2008)** This car model contains a million polygons. All the objects in the scene are three-dimensional, giving an impression of speed.

Drums **3ds Max, V-Ray (2008)** I prefer acoustic drum sets to electronic sounds.

Ferrari **3ds Max, V-Ray (2008)** I'm very interested in Formula 1 racing, as it brings together technicians, car design and very skilful drivers.



G This is where the tablecloth is created. It's a NURBS Point Surface with a chamfer applied. Remember to add a texture to the surface to make it look like cloth as well

Once the handle and spout have been created, the teapot is ready. Next, create a chrome material using the Material Editor and then assign it to the teapot.

The vase on the right of the dresser was made as a circular figure F. First of all, create a spline. Put the Bezier dots of the spline in the front view so that they look like a vase profile. Select this spline, activate Edit Support Spline so during the rotation of the spline around the support point we can get a vase figure. Next, we need to create a texture for our vase.

> "I've chosen a light brown colour for the furniture. This helps create the impression of a sunny day"

07 Frame the window

The window frame is a simple geometry object. Create a spline rectangle to make the perimeter of the window plus the upper frame and opening frame. Set the Spline>Section rectangle to 50-70mm and convert it to an editable poly. Select the edges of the longest sides and apply a chamfer. Now select the part of the frame that can be opened. Put its support point in the place when the frame hinges should be and rotate it around the Z axis in the perspective view at 40-50 degrees. Select All Frame Objects and perform Clone. Move this object at 150mm by the Z axis in the front view. Add hinges and the handle so that the frame now looks right but it's just missing textures.

H The chairs are made from circles that have been deformed. The legs are splines that have been twisted into shape under the seat area, which is attractively textured

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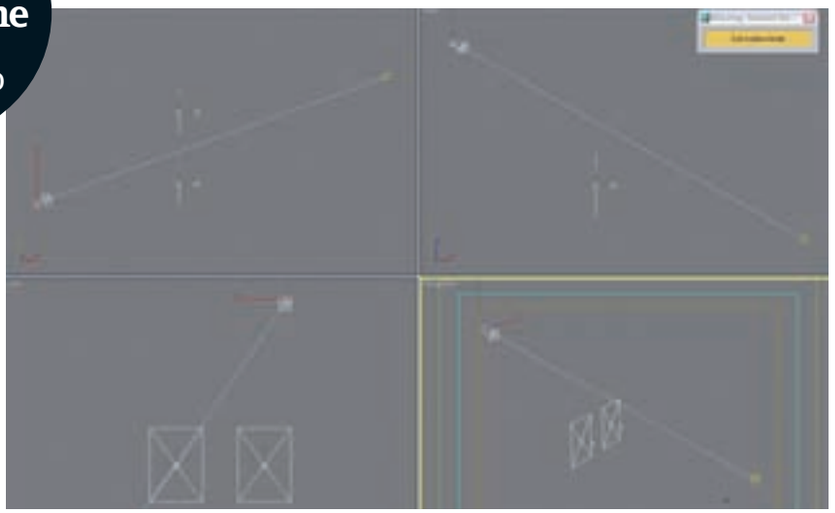
6 hours
Render time
Resolution:
3,500 x 2,800

Lighting setup

There is a V-Ray plane placed in the window frame. Make it invisible and directional. Set the Shadows to be V-Ray shadows. Smooth surface shadows must be turned on and area shadows must be on. Global Illumination Primary bounces the irradiance map. GI Secondary bounces the light cache. The colour of light for the V-Ray plane must be slightly blue and the directional light yellow. The light angle is set in the front render window.



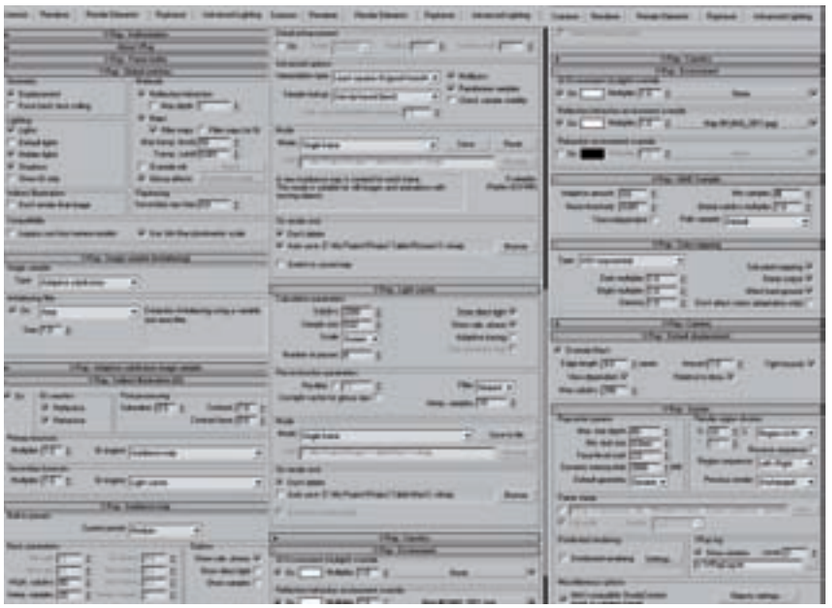
08 Lay the table

To create a tablecloth, we will use Modify Cloth again. Create a NURBS Point Surface in the top view – this will be our tablecloth. Set the Tesselation method with Advanced parameters with v.Tree to a minimum of three but no more than four subdiv levels. Create a chamfer cylinder, which will imitate the tabletop. Apply Modify Cloth to the object tablecloth G and – this is very important – assign a texture to it. Go to the cloth's Object Properties, and you'll see that the tablecloth is an object with cloth applied to it. Add Object>Tabletop>Collision object with the applied material, and then add gravity so it falls off the edges. Go to Cloth Forces>Add Gravity, then click on OK to simulate it. Apply the Turbo Smooth option to make it look realistic.

09 Model the little chair and spoon

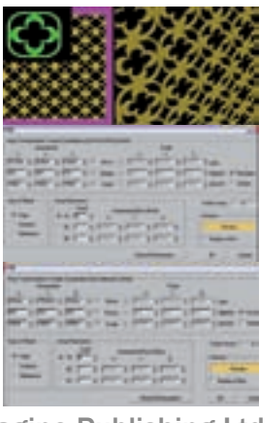
The form of the upper part of the seat is a circle. I've created a spline to make a cross-section of the seat. The spline should be modelled on the seat of a chair that has been handmade. The chair legs and supports are objects that are created by rotating the spline around its own axis. The axis can be adjusted by moving the support point in the geometric centre of our future chair leg.

The round end of the spoon is made using Edit Poly. The handle of the spoon is made from two parallel splines that are placed near each other, each with a 3mm diameter. The amount of segments should be set up to 250 so you should be able to screw both splines together. Use the Modifier Screw by 5,400 degrees (15 x 360 degrees). But before performing this operation, you should attach spline 1 to spline 2.



Render

The properties of light and the quality of picture are under the Render menu. There are plenty of possible variants for tuning the parameters for such things as secondary bounces, light cache, environment as well as the qmc sampler



10 Creating furniture materials

I've chosen a light brown colour for the furniture to create the impression of a sunny day. The various materials and this colour combine to add a fall-off reflection to the scene.

The material of the decorative elements on the dresser are yellow with an orange reflection. The reflection's blur of this material is set to 0.67. The material of the decorative glass is yellow too, with the reflection's blur set to 0.87. The material of the glass is a green shade. The main part of the upholstery of the chair is a texture that is assigned in Slot Diffuse H, while the nails use a metal material.

11 Adding the details

To create a radiator cover, create a frame with a perimeter then go to Create>Spline>Path and profile I. Apply a Loft modifier to create the frame. The cover is made by tiling one object. Create a Form>Spline, then apply Extrude. To clone this object, use the Array option. Clone the object vertically and horizontally, and that creates the radiator cover.

To create the carpet shape, go to Edit Poly>Smooth> Displace Map. Details can be added in Photoshop. To finish, add the tassles with Spline>Noise>Edit Spline.

I At this point, it's time to add all the small details and objects that are in the dresser and on the tables. The carpet can also be created, which is quite a simple construction. The tassles should be added on in 3ds Max, but the patterns and texture can be created in Photoshop if required

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Michael Wilson

3DArtistonline

Username: miketche

Personal portfolio site http://miketche.bravehost.com/

Country USA

Software used CINEMA 4D, Photoshop

Texture, render and post-process

"The image was rendered in three passes: Background, Midground and Foreground. Then the layers were composited together in Photoshop where additional touch-up work was done. I made the choice not to render it with Global Illumination; instead, it uses a setup of nine omni lights and spot lights placed throughout the scene for more theatrical lighting"

"Most texturing was done procedurally. Some, such as the detail work on the Minotaur where hand drawn (by my wife) and projected onto the surface of the model."

Theseus and the Minotaur 2009

"This image was created for the CGSociety Steampunk: Myths and Legends contest. I basically took the story of the Minotaur and translated it into a steampunk version so that if you look closely you'll see the Minotaur is coal-fired and driven by steam. There are little bits of escaping steam in various areas of the image. I was interested in creating the shallow depth of field effect in CINEMA 4D, which was the software used here, but it's actually easier to do it later in Photoshop."

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"Most of the smoke and steam are shapes with a smoky texture applied. Additional smoke and steam was painted in Photoshop"

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Software used in this piece

CINEMA 4D Photoshop

Some effects are simpler to achieve in post-production. Depth of field was achieved by slightly blurring parts of the background image in Photoshop.

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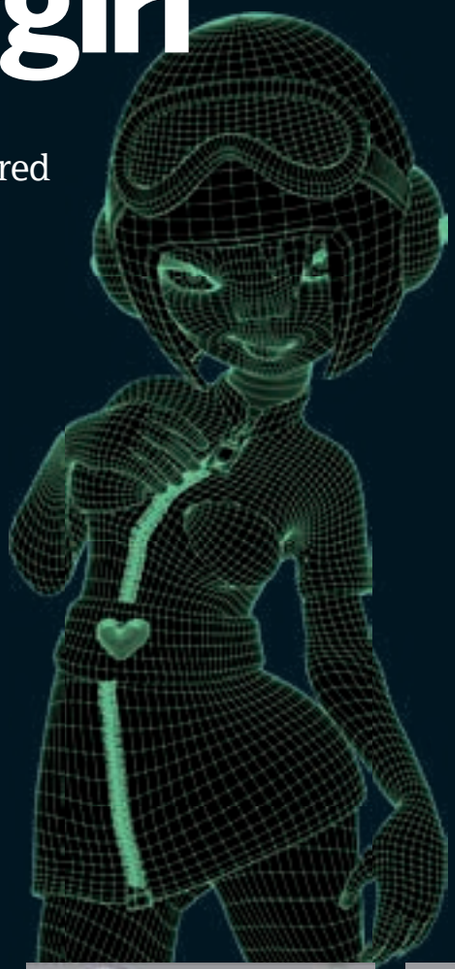
Step by step: Create a cute cartoon-style cybergirl

Pippa 2008

"A cute and mischievous manga-inspired cybergirl character, created as a personal portfolio piece just for fun"

Lee Davies is employed as a 3D graphics artist in Dublin

Model, texture, light, render and post-process



Here, I describe the key stages used to create *Pippa*, my manga-inspired cybergirl character. She was created using Maya and ZBrush, with textures and post-production tweaks in Photoshop and rendered using mental ray.

I usually begin any project by collecting visual references and sketching thumbnails, but this particular piece of work started out as a bit of fun and took on a life of its own without much planning. I did, however, use a resin statuette that I purchased from a Tokyo toy store as reference for the final pose, which was very useful to study from all angles. My goal was to create a character with a slight manga influence, while retaining my own sense of character design and applying this to the piece.

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Lee Davies

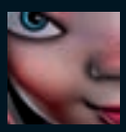
3DArtistonline
Username leemale

Personal portfolio site
http://leemale.cgsociety.org/

Country Ireland

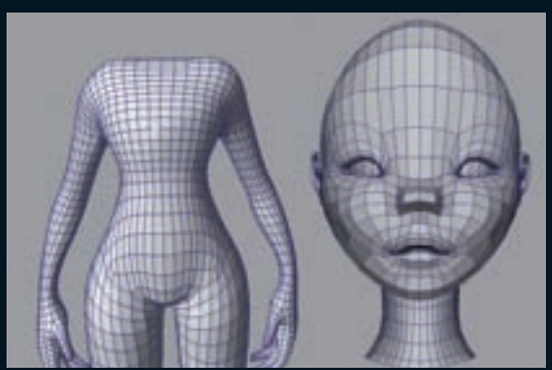
Software used Maya, ZBrush, mental ray and Photoshop

Expertise I enjoy character design and like to create celebrity caricature illustrations



Basic modelling

Blocking out basic proportions



01 I began by importing head and body meshes into Maya from my own library of base models in order to help save time. I generally switch between Maya and ZBrush quite frequently, even at this early stage as I find the latter really useful for deforming models quickly and intuitively, while Maya is great for editing the geometry, adding edge loops and retopologising wherever necessary.

02 At this stage I was blocking out proportions. To give her an impish appearance, I made her eyes quite large and gave her a cute sort of button nose. Next, the body mesh was split into separate components. A dress was created by duplicating the body, deleting the arms and legs and extruding the bottom edge of the remaining mesh. Then the arms and legs were separated.

03 A simple helmet was created (from a poly sphere) and a zip for her dress was made by duplicating a single pair of links along a curve following the profile of the dress geometry to form the teeth, with an additional piece for the pull tab at the top.

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> My goal was to create a character with a slight manga influence, while retaining my own sense of character design

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Software used in this piece

Maya Photoshop

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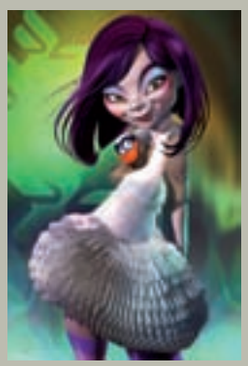
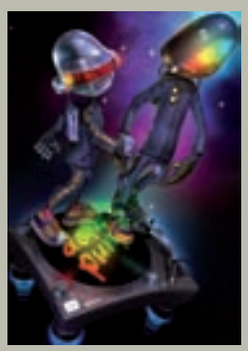
Artist Showcase

Lee Davis

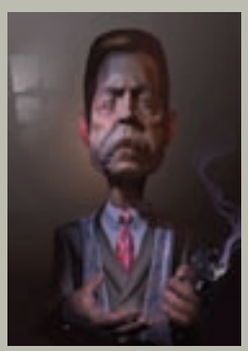
Born in England, I am a 3D character specialist. I am currently employed by PopCap, and live and work in Dublin. In my spare time, I enjoy creating 3D caricatures of celebrities.



Björk Everyone's favourite avant-garde Icelandic chanteuse, wearing the infamous swan dress from the 2001 Oscar awards.



Daft Punk French electro-funk pioneers Daft Punk. This piece allowed me to practice some hard-edged modelling techniques. I tried to evoke their music with it.



The Sicilian A tribute to Christopher Walken, based on his portrayal of Vincenzo Coccotti, 'The Sicilian', from *True Romance*.

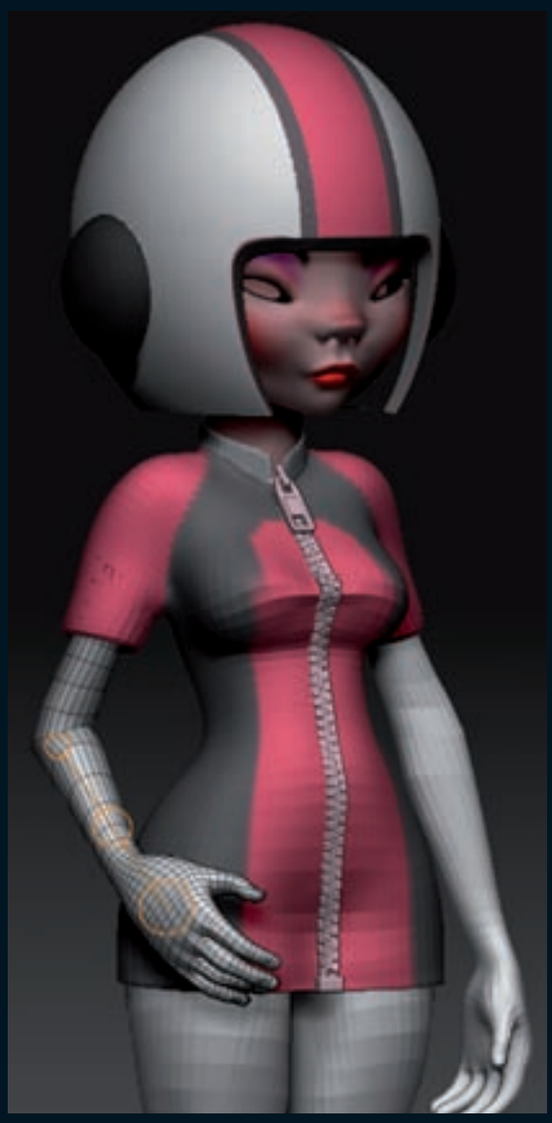
Fine-tune the character

Adding the details, posing and shading

04 Next, her goggle frames were made by extruding a poly plane along a curve and other small details were added, including the goggle lens, straps, heart motifs and helmet 'ear pods'.

05 I then used Maya for UV mapping before any subdivision in ZBrush had taken place, and while the geometry was still symmetrical. I generally prefer to lay UVs out manually, so that they can later be edited in Photoshop should the need arise. The automatic mapping functions within ZBrush can work extremely well, however, they can limit options for editing in other packages.

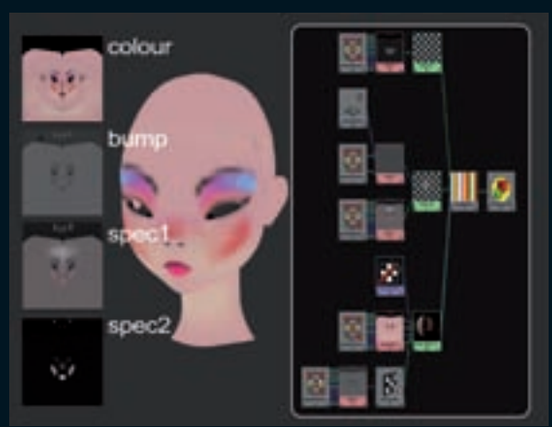
06 The component meshes were then imported into ZBrush as subtools to be individually subdivided, before painting colour textures and sculpting. Pippa's face and dress were both painted freehand, while the stripe on her helmet was applied in Photoshop via ZBrush's ZApplink plug-in.



07 ZBrush's Transpose Master plug-in was used to enable positioning of multiple subtools as one low-resolution mesh. The Lasso tool was used to selectively mask areas and then the Transpose tool itself was used to move, scale and rotate parts of the model incrementally until the desired pose was achieved.

Modelling

When experimenting with any sculpted deformations or transposing geometry in ZBrush, an excellent way to retain any original positioning for quick comparison purposes is to ensure any such changes are assigned to separate layers. This allows the user to switch between original and deformed versions of subtools instantly, and makes duplicating multiple variations of deformed subtools unnecessary.



08 A layered shader was applied to Pippa's head in Maya, consisting of an MI SSS fast skin base, with two blinn shaders to control levels of specularity and reflectivity. The colour map created in ZBrush was plugged into the diffuse and epidermal channels, and adapted in Photoshop to provide bump and specular maps. The subsurface effect here is stronger than a more realistic skin shader might have looked, but this lent her skin a slightly porcelain quality, which seemed to suit it. The other shaders were pretty fast to set up, a simple blinn material with bump for her dress and a glossy mia material for the helmet.

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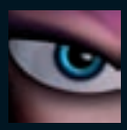
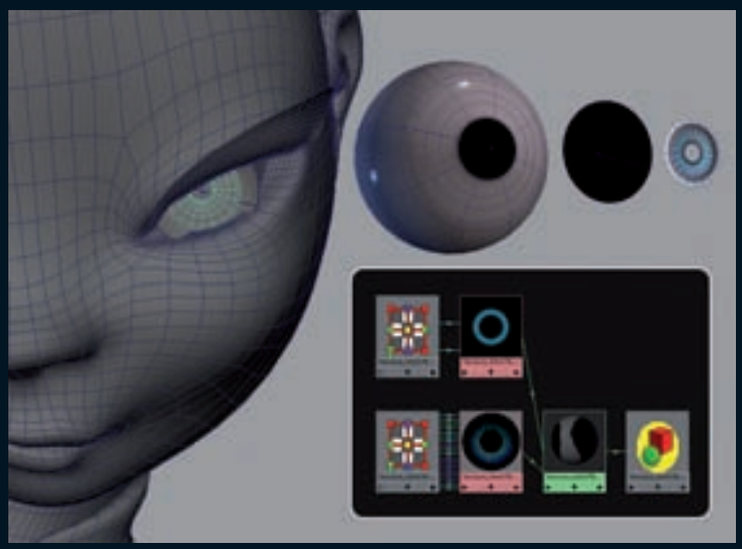


Finishing touches

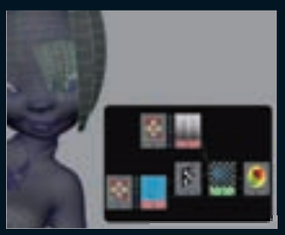
It's all in the eyes and the lighting



09 Eyes are important as they really breathe life into a character, as well as creating a point of focus. In Pippa's case, I mapped the iris with a circular ramp texture connected to the specular colour channel in order to achieve a slight reflective glow to try and make her look mischievous and slightly devilish.

Recycle elements

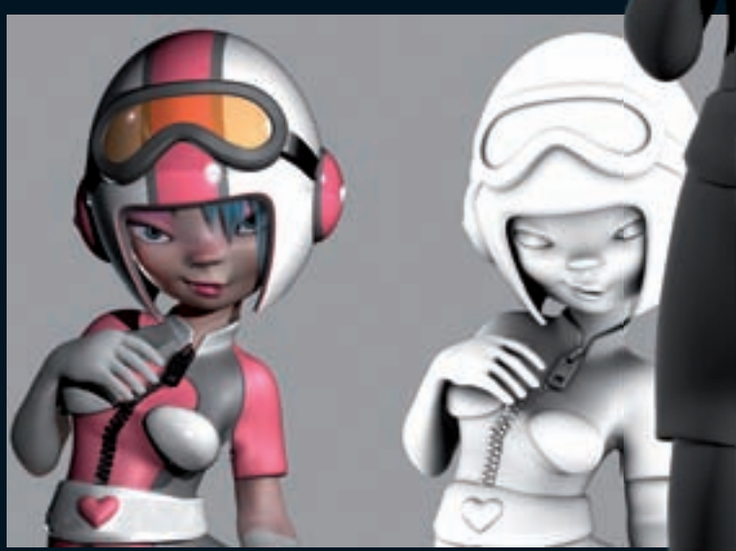
Keeping a library of useful base meshes and textures created previously for other projects can be invaluable. It may sound obvious, but a well stocked and organised collection of default heads, anatomical parts and textures which can be reused will save hours of unnecessary work during any new project. One well-constructed eyeball may be the only eyeball you ever need. By simply adjusting various attributes and swapping out file textures, it's possible to create a huge range of looks very efficiently.



10 Since creating realistic hair wasn't important (and because she's wearing a large helmet covering most of her head), all that was needed to achieve the required look was a simple poly plane with colour and transparency maps assigned, duplicated several times. The same procedure was also used for the eyelashes.

11 To illuminate the scene, I used a fairly simple lighting setup consisting of three spots (two front and one rear) as well as a single directional light, each with Raytracing Shadows switched on. I then created a quick series of test renders for each light in turn in order to ensure I was getting the desired look, adjusting the settings incrementally as required to get it just right.

12 mental ray was used to render the final image in two main passes: a default pass using the production quality preset and an Ambient Occlusion pass to improve the shadows. The highlight on Pippa's right cheek was the accidental result of a render without shadows turned on one of the spotlights, but it accentuated the shape of her face a little so I decided to keep it in. The final compositing was then done in Photoshop, where I corrected colours, added details including the antennae on her helmet, the bump effect on her belt, her striped stockings and added a simple gradient for the background.



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Automotive
Lance Hitchings
www.hitchingsdesign.com

Lance is responsible for our toy car tutorial this issue and is an expert in other car designs. Here, he reveals why a simple bump map isn't always the best option for realistic tyres

Characters
John Haynes
zugok@sbcglobal.net

John shares his tips for constructing the ultimate warrior character, with advice for form composition, essential heroic accessories and fail-safe techniques for modelling armour

Burn rubber

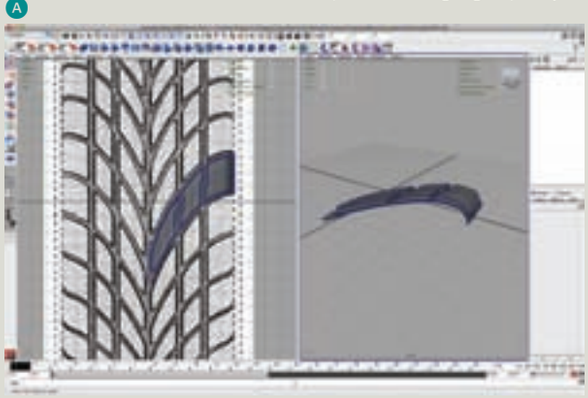
"I'm working on a concept car and have the bodywork and details down pretty good, but can't seem to get the tyres looking right. Any advice?"

Simon Elbourne Buffalo, New York, USA. Working in Maya

I've seen a lot of techniques for tyres involving simple geometry with bump maps for the tread. In my opinion, this technique just doesn't hold up when doing high-quality renders. Instead, I build the treads as geometry, and for the side wall details I combine a displacement node with a mental ray Displacement Approximation node (which is superior to Maya's default displacement node by itself). Since displacement actually creates geometry at render, the result is much better.

This tutorial was done in Maya, but the techniques would work in other 3D applications. The Car Resources thread (under Tutorials and Resources) on the www.cg-cars.com/forum has some great resources for both treads and side walls for a variety of performance tyres.

A



01 Build the tread

First, load an image of a tread into the image plane of the Top camera. Build a single tread, making sure that the front edge perfectly matches the back edge and is of a consistent width along the entire length A. Use Edit>Duplicate Special to create a row of treads. If the front and back edges don't match, or if the width of the tread varies, you'll get gaps between treads. I duplicated 35 times along the Z axis with the distance equal to the width of the tread B.

B

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Landscapes
Brajan Martinovic
http://sittingducky.deviantart.com/

Moving from a 2D environment into a 3D one can open up all sorts of possibilities. Brajan shares the secrets of his workflow between both disciplines in his creation of other worlds

Your guide
Duncan Evans
www.3dartistonline.com

Duncan is your first point of call if you're suffering from a 3D niggle. As editor of the magazine, he can arrange to have your problems sorted out by talented and professional artists

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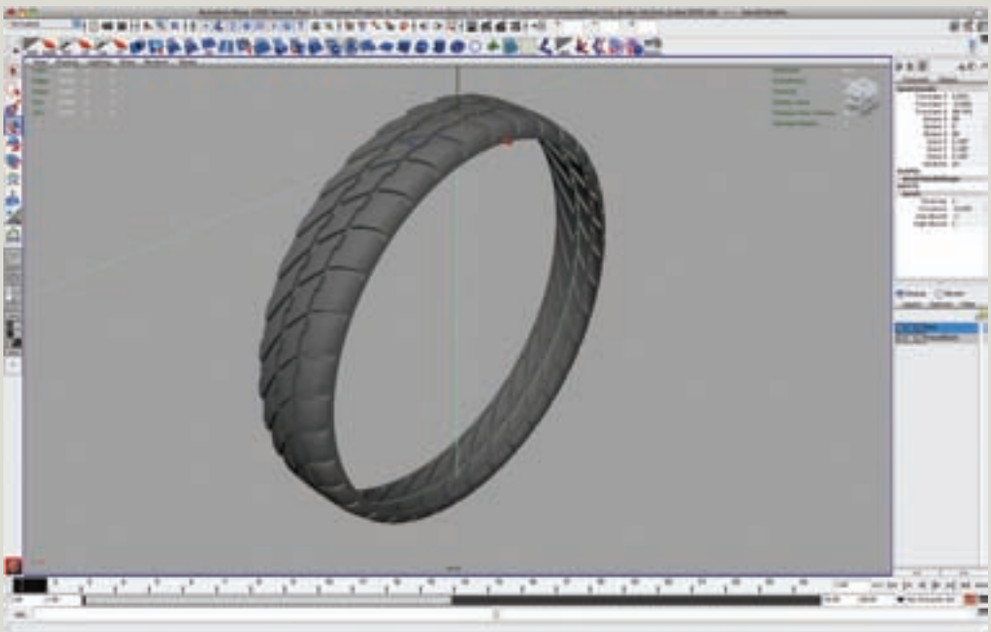

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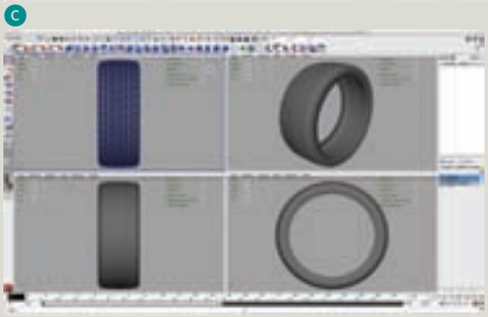

D

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G

02 Build the tyre

Now to form the shape. Use Mesh> Combine to turn the treads into an object. In the Animation menu, use the Create Deformer>Nonlinear>Bend command to place a bend deformer on the row of treads. Rotate the deformer until the bend axis is curling the tyre in the direction you want. Input a value in the Bend attribute that bring the leading and trailing edges of the row of treads together perfectly C. Now you need to merge the vertices of both edges together. Select the entire edge of the tyre along the beginning of the side wall and use several extrudes to create the rest of the side wall. Now mirror this half of the tyre across the X axis, combine both halves D (Mesh>Combine) and then just merge the vertices.

03 Create a shader network

I used three shaders for the tyre – all of them are mia_material_x shaders. For the tops of the treads, I used a flat shader (topTread), a glossier shader with a displacement node for the side walls (tireSidewall) and then a similar shader (tireTread2) for the rest of the tyre. Because the tyre is a single object, these shaders were assigned to selections of individual faces. I used a planar UV map for the side wall faces in addition to a cylindrical UV map for the rest E. Since all of the faces are on a single map but don't use the same materials, it's absolutely fine to overlap the two projections. Doing this allows me to use all of the resolution of the map for the side wall texture.

04 Set up displacement map

Assign the shaders to the mesh, selecting the appropriate faces for each material. With the mesh selected, go to Windows> Rendering Editors>Mental Ray> Approximation Editor F. Hit the Displacement Create button to create a mental ray Displacement Approximation node. Hit the Edit button to bring the node up in the Attribute Editor, and choose the preset Fine View Low Quality. Open the tyre's Shading Group in the Attribute Editor G, and assign an image file to the 'Displacement mat' attribute under Shading Group Attributes, which will automatically create a displacement node for you.

For the tyres in the main image, the displacement value (height) is determined by the Color Balance>Alpha Gain attribute for the image file. I used a value of 0.0015 and I set the filter to MipMap. That's basically it – you should be ready to render at this point.

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3DArtist Your questions answered

Have a question about the software you use? Thwarted by creative block? Contact us and we'll help you get back in your 3D groove

Armour is a requisite for this warrior style, be it full body or just a touch

Any weapons need to be big, mean and impossible for a mere mortal to wield. Go for body-length creations

Don't get bogged down in weapon decoration – a bit of texture will suffice

Look at medieval armour for ideas about what detail to include

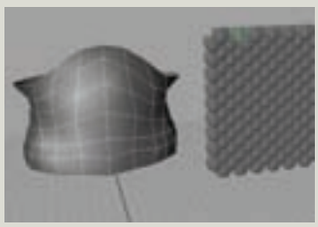
Any clothes should look as if they were stitched together by honest, hero-worshipping peasants!

Bare feet and battle never work, so give your character some decent footwear to stomp all over their foe

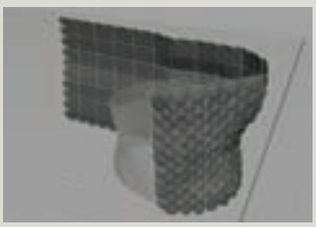
In search of a hero

"I really love the classic fantasy warrior style – you know, lots of big muscles and outrageous weapons. I am struggling to make up my own character, though, and wondered what the key characteristics were and how they are modelled?"

Samantha Watson Plymouth, UK. Working in Maya and ZBrush



01 **The scale armour** of our character's waist is a normal map, created from a simple repeated shape placed in an overlapping pattern and then wrapped around the body. The advantage to this instead of using a painted-on scale is more volume and realism since the scale geometry can add to the volume of the base surface.



02 **Starting from a** leaf shape with some thickness, duplicate enough to go around at least half the body. Duplicate several rows and have leaves overlap and offset, much like a brick wall or tiled roof is put together. Make sure that you have enough rows to blanket the whole area to be covered.

03 **Select all the** shapes and add a lattice. Make sure the lattice has enough divisions to allow for a smooth bend – I used 15 columns and eight rows. Using the lattice, wrap the scale around half of the torso. When complete, mirror the other half, clean up and the covered section of the torso base can be removed.

The most obvious characteristics are big shoulders, hands and feet. You can also add heavy facial features, a thick neck and clothing that is simple and worn. The personality and expression of the warrior is often a seasoned veteran look, the eyes and brow expressing hardness. Other features that can help are items such as multiple weapons, trophies, jewellery and armour that reflect the environment the character exists in.

The most important parts are the face and silhouette. Select one or two primary elements for the character's theme and place them on the upper body. This helps draw attention there. Also, make sure that detail is varied in size and is placed to create asymmetry – this adds personality to the character. All the major details might be the same style or origin so they belong together, however, smaller details can be different to add some interest. Just make sure that they do not distract from the main theme.

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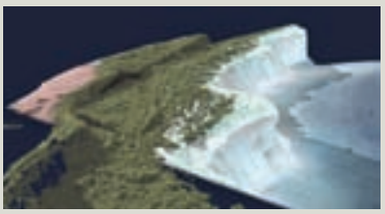
2D or 3D? That's the question

"I come from a Photoshop background and want to start incorporating some 3D work into my Photoshop art. What are the benefits of this?"

Keith Waters London, UK. Working in Photoshop and mental ray



The trees were created with a simple particle system

The image below was made for an NVIDIA Artspace competition. A lot of post-production work had to be done, and it is a good example of using Photoshop on rendered 3D elements, which ended up taking about 70 per cent of the time. I used simple models and shaders rendered in a standard scan line (the occ layer was done in mental ray). The process was simple and it gave me a lot of space to experiment.

Exporting models to Photoshop means I don't have to concentrate on meticulous UV mapping and texturing on the model. You can use every technique you can come up with and don't have to think about it in motion. You can also try to fake a global illumination effect by painting faint light reflections and colour bleeding on the surrounding geometry.

In the image below, I experimented with colour adjustments using Curves. I adjust each channel separately to get the mood I want. I usually make darker tones colder and highlights warmer, but it's often interesting to do the opposite. So that I can easily spot any mistakes, I flip the image horizontally.

Models

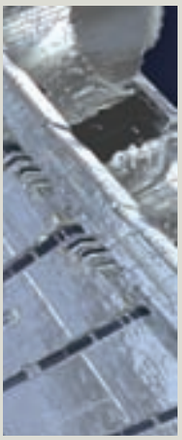
To preserve memory and keep things simple, I modelled the emitter buildings by instancing a few floor model variations on top of each other to create a huge wall. Later, I deformed the whole thing to get the spiky shape I imagined. I also made a small tileable model of mechanical detail that I instanced across the inner side of the building and around the vents. I rotated, flipped and scaled them individually to kill the unwanted pattern effect. A simple particle system was used to scatter hundreds of small spheres across the terrain mesh as trees.

Layers

I wasn't happy with the building's dull look once the colour and occlusion layers were composed; I like to see mechanical stuff having worn edges. That's time-consuming to UV-map and to texture, so I applied a simple reflective material and rendered the whole structure with it. The same bump map was used as a base colour. Terrain material had additional small noise bump on top of the normal map to add detail. Mild fall-off in the colour slot accentuated the bumpness.

Base colour material

Ambient occlusion pass



Reflective material

Postwork

Now that the layers were done, I blended them in Photoshop using layer masks. Use as many layers as you need to make your models more complex. That would be much harder in 3D, as you would have to make mixed materials and do a lot of greyscale maps to mask them. The raw 3D renders usually come out too soft and low on contrast, so I manually sharpened the edges of the mechanical stuff and the trees to get more detail.

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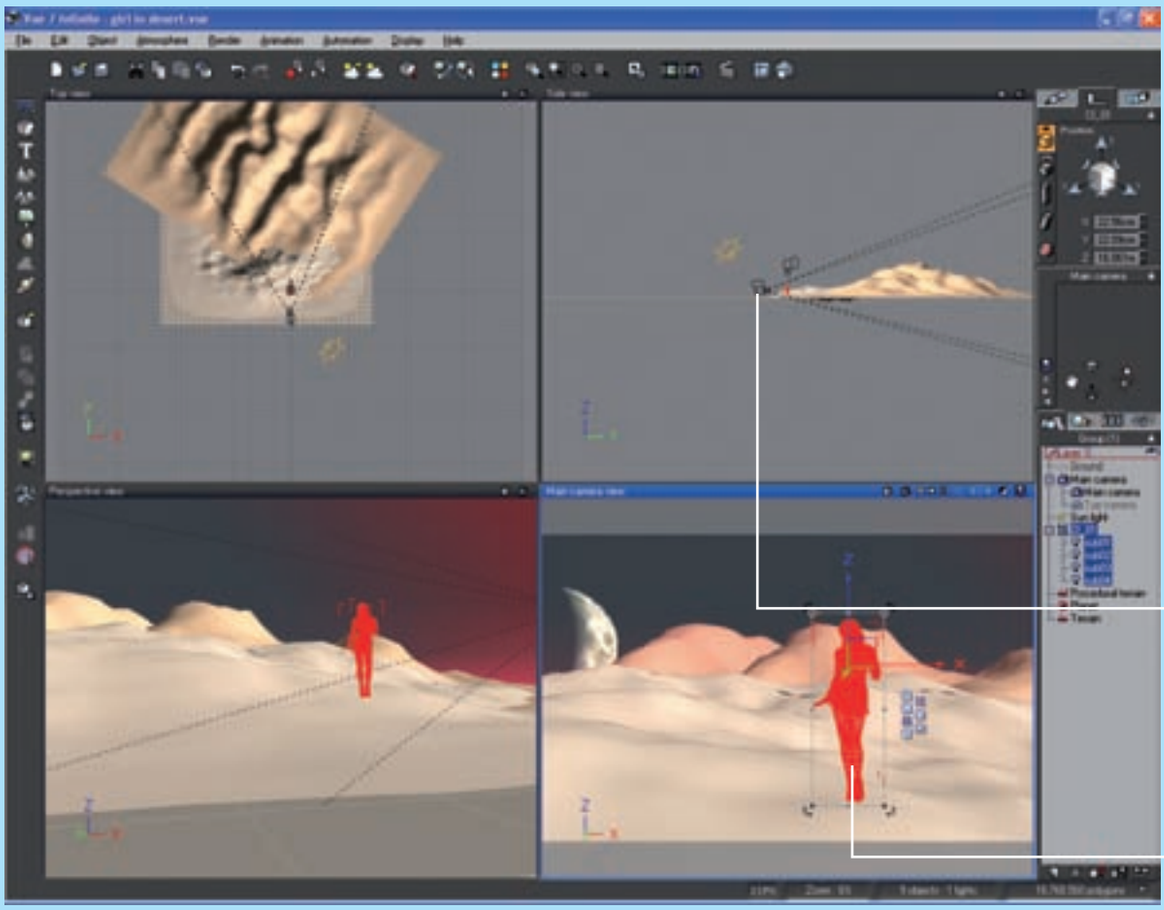
Vue 7 Infinite £693.71

Why bother modelling and populating an entire landscape and ecosystem when there's software to do it for you?



The metallic material reflects the golden sand surrounding the figure. You can even add half-moon effects for the background

The main camera can be repositioned at will and also use different focal lengths to exploit depth of field and field of view

It's easy enough to import other 3D objects into a Vue scene. Here, the figure of a girl is added to some desert

If you recall the seat-of-the-trousers drive along a cliff edge in the otherwise execrable *Indiana Jones and the Crystal Cash Cow*, then it will come as no real surprise to learn that the landscape far below was computer-generated. It was created with Vue, the landscape generation program that started as an alternative to Bryce for the hobbyist and has developed into a fully fledged system used by the top Hollywood studios. There are a number of versions of Vue 7, from Pioneer for the beginner at a very affordable price, to Infinite, the fully loaded, standalone version and xStream, which works inside Maya, 3ds Max, CINEMA 4D and LightWave 3D.

Vue, whatever the version, uses a standard four-screen display, showing top, side, front and main camera views. There's also a perspective view that can be used in place of any of the default options as well. As the front view is often superfluous, it can be worth replacing it with the perspective view. What can be quite laborious is manipulating the view. There are rotation and zoom-in and out controls for the main camera view, but it's often the case that you just want to zoom over to another area to check it out. The middle mouse button defaults to viewpoint zoom and the right button thankfully is a drag option, but it isn't as quick as using the 3D view manipulation in Bryce.

Terrains are usually the starting point and can be created as either an infinite procedural plane or using the height field editor. The procedural terrains are very detailed, even close-up, and provide excellent expanses of rock and stones. The height field editor, though, is clunky and lacks sophistication. It uses the old Bryce-style spray can approach to raising or lowering the ground, and has defaults for throwing in mountains, peaks, canyons, mounds, dunes and icebergs, and can erode a scene in a number of ways. The effect is certainly fast and easy to use, offering the spray can or paint type approach, but it doesn't really let you sculpt a terrain into the shape you might have envisaged. It certainly feels quite old-school in use and might well be due an upgrade for version 8.

In terms of what has changed in this release, it's mainly an enhancement of existing facilities rather than wholesale innovation. The integration with 3ds Max, for example, in the xStream version is considerably tighter, allowing all the Vue functions and objects to be used directly

The good & the bad

- ✓ Expanded EcoSystem library
- ✓ Enhanced terrains
- ✓ Configurable water object
- ✓ Improved integration for xStream in major apps
- ✓ Volumetric clouds and faster rendering
- ✗ View system still clunky
- ✗ Terrain editing tools are relatively crude
- ✗ Limited options for rendering separate skies

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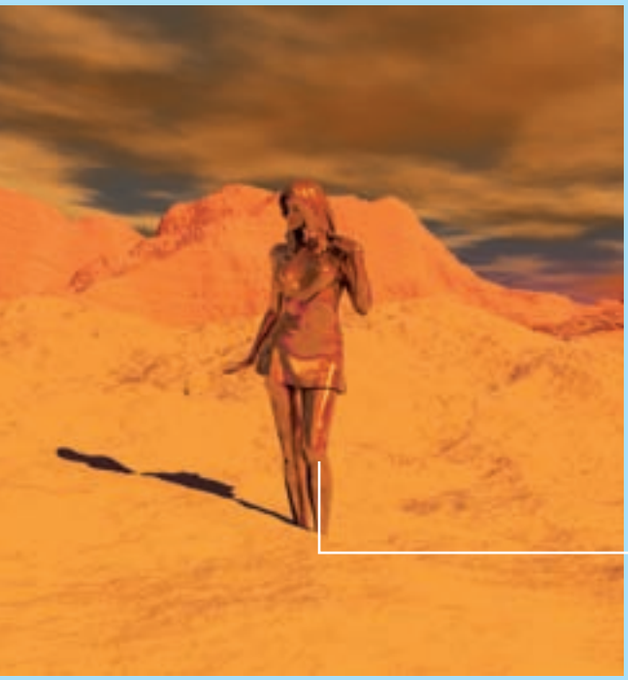
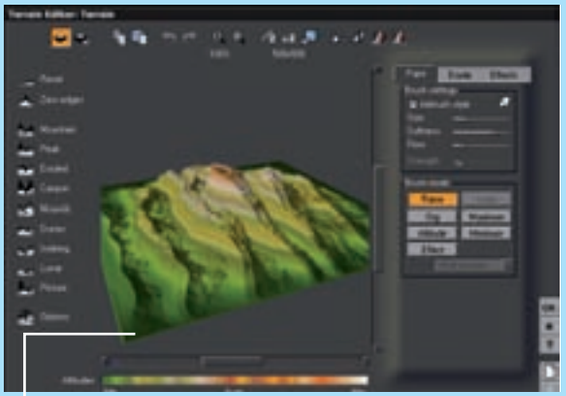


There is a wide choice of materials available for most objects. In this one, a metallic material is added to the figure



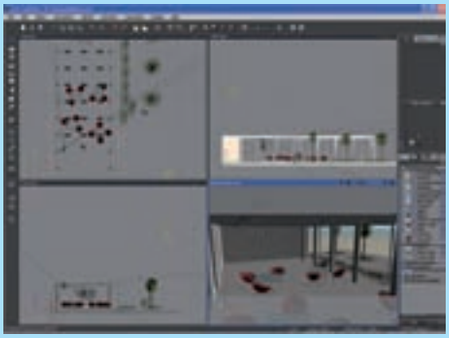
The standard height field terrain editing leaves a few features to be desired

Essential info

www.eon-software.com
- **Free beta (Pioneer)**
- **£164.36 (Esprit)**
- **£693.71 (Infinite)**
- **£1,138.86 (xStream)**

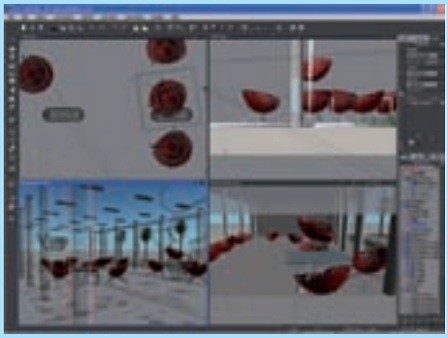
OPTIMAL SYSTEM REQUIREMENTS (PC)
- Windows XP, 2000, Vista (32-bit/64-bit)
- 2GHz Pentium 4 processor
- 2GB RAM

The EcoSystem can paint with just one item at a time or a little bit of everything that's been loaded



Action – have total control over your workflow

The standard four-pane view can be manipulated through zooming in and also using the right mouse button for dragging



Camera – get the best views possible

It's easy enough to pick furniture up and move it around. As the output resolution is widescreen, a grey matte covers parts of the camera view

Lights – lend your room some realism

The completed rendered room has natural light streaming in from the south corner, resulting in a stunning end product

> "It's mainly an enhancement of existing facilities rather than wholesale innovation"

inside Max. One notable change, though, is that the water plane from Vue 6 has been replaced by a procedural water object, which can be edited to change the effect from total calm to the threshing surface of a storm-wracked ocean. The wind direction can be set to drive the waves and there's the option for foam on the waves and along the coasts.

The EcoSystem was introduced through versions 5 and 6, and while it hasn't been rapidly changed, it has been expanded in terms of content and how it can be used. There are over 70 new species of plants to use, including some very large ones that look great close-up. You can now set the angle that the plants are placed at, so they can jut out of cliff faces, for example, which couldn't be done before. The actual plants aren't displayed on the previews, however, in order to keep speeds up; they only appear when rendering. Also, plants now have wind blur so animations over heavily forested areas don't flicker like they used to. You still need to design the landscape first before adding the ecosystem, though, as otherwise changes in height will leave you with floating plants and trees.

Finally, the volumetric cloud and atmosphere creation is much improved, the GI and radiosity rendering is much faster than version 6 and the quality of the final result is better than ever. With a version for every pocket, Vue remains the leading artificial landscape creation package.

Our verdict

Features	**9/10**
Ease of use	**8/10**
Quality of results	**8/10**
Value for money	**7/10**

> "Create sprawling landscapes with massive ecosystems in detail so fine it's hard to believe"

Final Score 8/10

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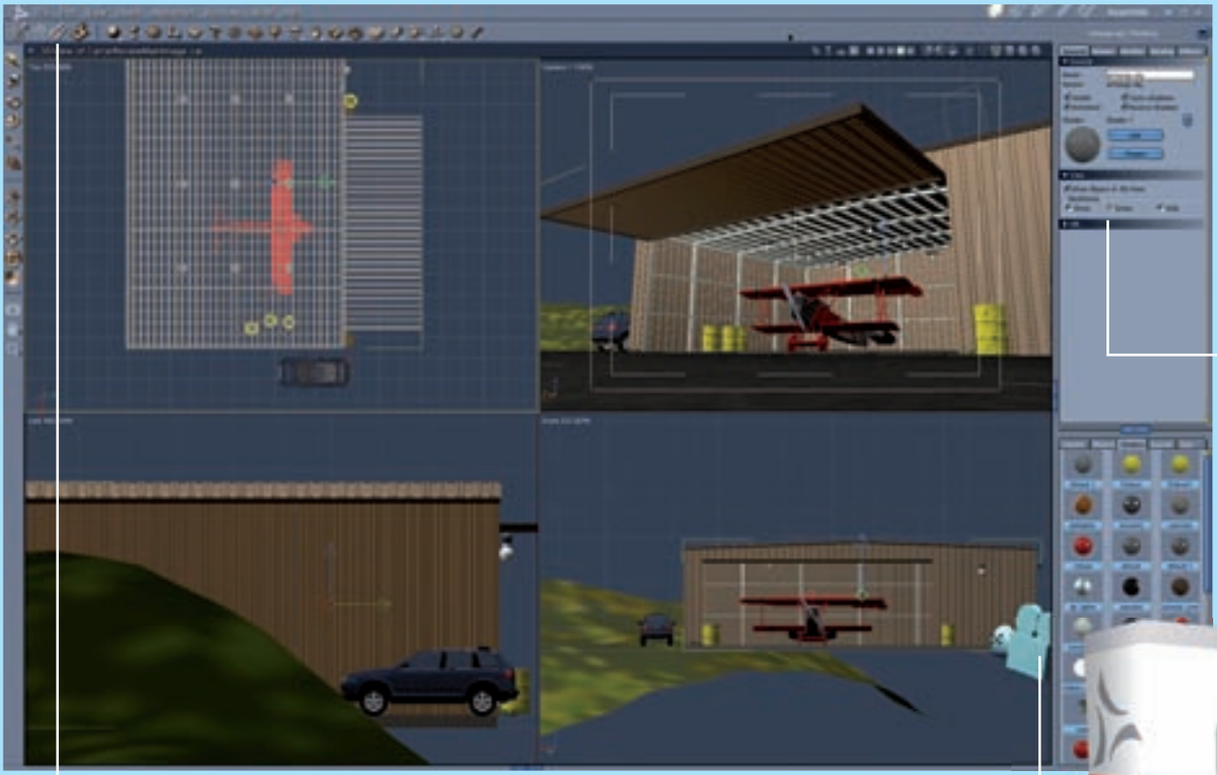
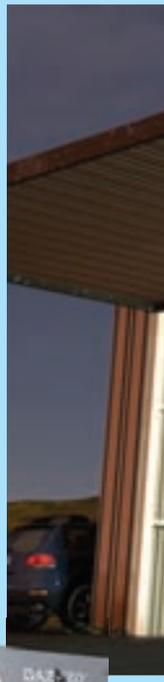


There are four main sections to the program, starting with Assemble where the scene is put together. The next stages cover editing objects and primitives, then there's animation, adding textures and finally, using the rendering engine from any of the windows or the camera view

View scenes in single or multiple view modes, each window having the ability to render textured OpenGL previews to basic geometry and wireframes

This is the front view of the scene, not the camera view, so it can easily be manipulated without changing the render view



DAZ Carrara 7

Affordable, full-featured 3D modelling and animation solution that allows for direct manipulation of Poser and DAZ figure content directly in the program

With the release of Carrara 7, DAZ has taken the easy-to-use foundation of Carrara, refined it and added some feature sets that blur the distinction between expensive cinematic 3D solutions and affordable 3D for small studios or hobby users.

Several of the new additions have been long requested, which should give many of the faithful Carrara users some overdue satisfaction as well.

To begin with, Carrara users can now paint directly onto their objects, which is an extremely powerful feature. When engaging the painting feature, users are presented with a variety of 3D texture channels, like colour, bump, etc, into which they can paint individually or collectively. These channels are written to separate texture documents that can be saved in the format of the user's choice and edited separately if needed in an external paint program. Each of these documents can be a Photoshop document that respects layer information. In fact, you can add new layers from within Carrara.

Painting is accomplished by selecting from a preloaded set of brushes, which are fairly varied. Additionally, any user that has experience with creating brushes for Photoshop can also create their own brush sets. Carrara allows tablet/pressure-sensitive capability, so texture detailing on original or existing models is faster. There are also native capabilities for cloning, airbrushing, drawing straight lines, erasing, colour sampling plus symmetrical painting.

A related improvement to the Carrara texturing capability is a new set of UV tools. UVs provide Carrara the digital instructions of how textures are supposed to map onto a 3D object. Carrara has had basic UV mapping features for some time, however, the new ability for UV unwrapping along with required seam and pin tools have been added, giving users who create 3D models control that wasn't previously available. This is a significant addition that allows for much better control of textures for both organic and hard-edge models.

One of the significant advantages Carrara has over some of its more expensive brethren is the ability to work with both Poser and DAZ rigged/boned content natively, vastly accelerating both scene creation and animation. Adding to this powerful feature is the new Levels Of Detail (LOD) for DAZ content. Users can now work more effectively with dense DAZ poly mesh content, but preserve their system resources by assigning a lower LOD for characters in the background. This frees up computer resources, effectively making the scene less heavy, allowing for older computer systems to handle rich 3D scenes more easily.

A long-awaited feature has been the ability to integrate the polygonal/vertex

On the Disc

Carrara 6.2 Pro – full version
Check out the PC version of this full product on the cover CD to discover Carrara for yourself!

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This image by author Mark Bremmer has been rendered with Carrara's Indirect lighting for natural 'bounced light'

The good & the bad

- ✓ Full landscape/vegetation replication system
- ✓ Good render engine with many options
- ✓ Direct manipulation of Poser/DAZ rigged content
- ✓ Simplified GUI compared to other 3D solutions
- ✗ Global Illumination, while good, is not very fast
- ✗ Doesn't allow for alternative render engines
- ✗ Polygonal modelling tools adequate but not great

Essential info

www.daz3d.com
- **£303 Pro (£137 upgrade)**
- **$549 Pro ($249 Standard)**

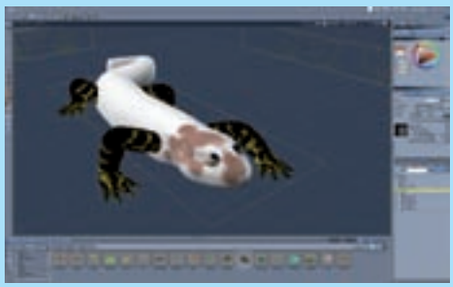
OPTIMAL SYSTEM REQUIREMENTS (MAC)
- Mac Intel or Power Macintosh 700MHz (1.6GHz or faster recommended)
- Mac OS X 10.3.9 or above
- 1GB RAM min (2GB recommended)
- OpenGL-compatible graphics card with at least 128MB RAM
- 600MB free hard drive space for installation

OPTIMAL SYSTEM REQUIREMENTS (PC)
- Pentium III processor 700Mhz (1.6GHz or faster recommended)
- Windows 2000 (Service Pack 2), Windows XP, Windows Vista
- 1GB RAM min (2GB recommended)
- OpenGL-compatible graphics card with at least 128MB RAM
- 600MB free hard drive space for installation

> "One of the most feature-rich and powerful 3D software solutions"

Painting textures directly into channels

Texture painting presents a dialog for choosing what channels to paint in and whether to save the textures as layered Photoshop files or flat file formats



Photoshop and Carrara work together

Users can choose to paint on single channels or all channels at once. If working in Photoshop format, new layers can be added in Carrara

Reworked UV unwrapping for easier texturing

New UV unwrap tools make it easy to precisely manage 3D geometry for organic and hard-edge meshes for ease in texture development

modeller in the Carrara main Assembly Room. While the original Vertex modelling room is still there, it is now possible to also work with multiple, ungrouped mesh objects simultaneously. This a huge advantage when modelling things like clothes and accessories, while seeing the main character at the same time.

Another significant addition in Carrara is the Multi-pass (MP) rendering output. Aimed squarely at the pro and advanced users, rendered output from Carrara can now include an industry-standard range of additional rendered information for use in video editors and Photoshop. The MP renders now include a full range of lighting and colour information as separate files.

For users that use multiple 3D solutions, Carrara now exports to what is quickly becoming the industry standard, Collada. Invented by Sony, this format transports 3D and texture information into a variety of 3D and game-authoring environments.

For animators, another notable addition is the ability to group and collapse the display of Non-Linear Animation (NLA) clips, vastly easing management requirements in rich animation scenes.

At the time of writing, a public beta test of Carrara 7.1 has been released, with additions to the painting features and significantly improved caustic renderings. The team behind the scenes at DAZ are apparently not waiting long to extend this new release's capabilities even further.

For new users, Carrara is one of the most approachable, feature-rich and powerful 3D software solutions available bundled at a low price. For advanced and pro users, Carrara 7 Pro has finally added some of the features that make it quite easy to integrate into pro pipelines.

Our verdict

Features	8/10
Ease of use	9/10
Quality of results	8/10
Value for money	10/10

> "Given its price point, capabilities and render output, it's hard to find fault with this app"

Final Score 9/10

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DAZ Studio 2.3 Free

It is said that the best things in life are free, but does this sentiment apply for a 3D artist's work tool of choice? The latest edition of DAZ Studio comes under scrutiny

Offering users an easy-to-comprehend user interface and workflow, DAZ Studio is everything the 3D novice needs to create 3D environments and characters. DAZ Studio 2.3 really makes CG art an obtainable goal for even the most elementary of users, thanks to the Quick Start option. However, even if you ignore this, it isn't hard to understand how DAZ Studio operates.

Building your characters in DAZ Studio is very simple. Accessories, such as hair, clothing, lighting and scenery, are easily applied by activating presets, and DAZ Studio loads it to your project. All features can be defined through common slidebar functions, within the Morph panel in the Parameters tab. Also, there is now the addition of the Favorites group, which allows your best effects to be used in other projects instantly. Another new feature is the Smooth Angle option. This, available to access from the Surface Tab, provides a specific and faster way to define edges.

All image elements can be easily altered through a set of axes. Simply click on the control points and move your mouse to alter them. The green axis establishes vertical movement, while the red axis controls horizontal movement and the blue commands depth or scale. This helps quickly establish perspective and scale within project elements.

Designating the body parts to move is the easy part. With the Active Pose tool selected, click the desired joint or limb. Your selection is displayed as active by a yellow cubic grid. All you have to do is move the mouse to position your model into any pose you imagine. However, we will say that movement still isn't any more fluid than in previous editions. Again, with all DAZ Studio software, practice makes perfect here, but this is still one of the easiest ways to get into 3D modelling and rendering.

> "This is still one of the easiest ways to get into 3D modelling and rendering"

The new Favorites group is split into two. Local Favorites are node-based and are applicable to selected elements. Figure Favorites are active at all times, even when you select another figure node

The fun part of DAZ Studio is in the modelling studio. DAZ characters are automatically rigged so all you have to do is grab arms and legs, head and torso and twist, pull and bend them into position

The torso can move back and forth and also twist, but be careful doing this because there are no limits on what movement you make - you can soon leave a slew of contorted figures in your wake

As if it wasn't easy enough, there's help on hand to explain the best way to manipulate the figure, including using some of the pre-configured poses that can be applied directly

The ability to create lip-syncs is now available in DAZ Studio 2.3. Just upload your figure and sound files and Lip-Sync does the work, although you can amend lip speeds and tempo

Essential info

www.daz3d.com
Free download and upgrade

OPTIMAL SYSTEM REQUIREMENTS (MAC)
- Power Macintosh or Intel Macintosh
- 700MHz (1 GHz or faster recommended)
- Mac OS X 10.4 or above
- 256MB RAM min (512MB recommended)
- 50MB free hard drive space for installation
- OpenGL-compatible graphics card with at least 128MB RAM

OPTIMAL SYSTEM REQUIREMENTS (PC)
- Pentium III/AMD Athlon processor running at 700MHz
- Windows XP, 2000 or Vista
- 25MB RAM min (Windows XP, 2000), 512MB RAM (Vista)
- 50MB free hard drive space for installation (free content bundle requires 350MB)
- OpenGL-compatible graphics card with at least 128MB RAM
- Drivers supporting OpenGL 1.3 recommended

Our verdict

Features	7/10
Ease of use	8/10
Quality of results	7/10
Value for money	9/10

> "DAZ Studio is a great starter program for the enthusiast to sharpen their teeth on"

Final Score 8/10

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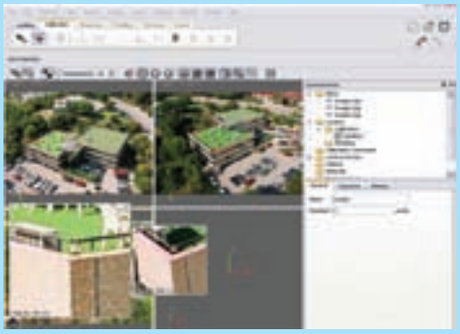
Autodesk ImageModeler 2009 £875

A complex but powerful program, especially for architectural 3D

Autodesk's ImageModeler 2009 takes regular photos and, with a little computer magic, turns them into 3D models. It doesn't mean to say it's all plain sailing, though, because the use of co-ordinates and axes will be daunting to the average enthusiast. The best place to start is the user guide, which lends a helping hand from pre-production through to post-production project practices. Those familiar with either the previous versions, or modelling in general, will pick it up easily enough.

Uploading your pictures into the ImageModeler workspace is easy with a simple browse and load function. Straight away, you will notice how the software provides detailed options. You have a choice of loading single shots, full 360 panoramic images or a mix of both. The interface may seem confusing at first, but workspace options are presented in the order they need to be applied, from Calibration through to Export. This makes the application very easy to follow.

Spacial relations are established simply by laying matching 2D markers or Locator Markers across your sequence of images. Initial Locators represent different views of the same point in space, and after laying multiple examples then pressing Ctrl-click, ImageModeler runs the Calibration process.



ImageModeler can be used to calibrate pictures and generate a 3D model from 2D pictures, then export to 3ds Max or Maya to be amended. A new smart blending option allows the creation of smooth, blended textures

After defining reference distances, you can make distance and angle measurements directly from your image using the Rule tool. This is especially handy for geometric shapes like buildings. Snapping onto your 3D locators lets you calculate real-world distances and angles between points.

Photo texturing in ImageModeler is also very good. Texture mapping is an automatic one-click process, while photorealism is built-in. Textures can be extracted either on a mapping group or an entire object, while retouching textures is pretty simple too, as you can make amendments in Photoshop. Once you have finished and saved, the amended textures are automatically reloaded into your ImageModeler workspace.

www.daz3d.com

Our verdict

Features	7/10
Ease of use	6/10
Quality of results	9/10
Value for money	7/10

"Environmental and architecture artists will get the most out of this impressive program"

Final Score 7/10

3Dconnexion SpaceExplorer £272

A 3D mouse that justifies its price tag if you are serious about your 3D work

SpaceExplorer, produced by 3Dconnexion, a Logitech company, is an impressive-looking piece of hardware. This 3D mouse screams professionalism, with gloss buttons, smooth finish and a vibrant blue LED light. There are a number of 3D mice in the range from 3Dconnexion, with cheaper options for enthusiasts and this top-end model for professionals.

This sophisticated piece of hardware is very user-friendly, from setup through to actual use. Kick-start the installation process and SpaceExplorer runs 3Dconnexion's Configuration Wizard. This is an interactive tool that uses animation and imagery, running you through a diagnostic of how your 3D mouse should respond. Movement and configuring your preferences are presented in an entertaining and assuring fashion.

Itemising your SpaceExplorer options is really easy. Clicking the Panel key opens the 3Dconnexion Control Panel, allowing you to designate a specific function to all buttons by accessing simple drop options. Rotation, Pan, Save and key shortcuts are all applicable.

The ergonomics of the SpaceExplorer are very good. Its soft, sculpted palm rest equals great wrist support, letting your fingers do all the work. The key positions feel natural and can be rapidly located by your fingers. Using SpaceExplorer together with a mouse fundamentally engages both your hands in a natural, intuitive way. We took it for a test drive in DAZ Studio and 3ds Max, the environments that it's designed for (a full list of compatible software is on the 3Dconnexion website), and being able to rotate and manipulate 3D objects with a 3D mouse made the process a lot faster and a lot easier.

http://shop.3dconnexion.co.uk

Our verdict

Features	9/10
Ease of use	8/10
Quality of results	9/10
Value for money	8/10

"The SpaceExplorer is a great design, with maximum control"

Final Score 9/10

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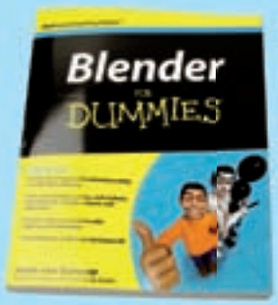
EXPLANATION AND INSPIRATION
Blender for Dummies provides a great mix of inspirational ideas and easy-to-understand technical information

Blender for Dummies £22.99

Blender gets cut and diced in this simple recipe for 3D success



info

AUTHOR
● Jason van Gumster

PRICE
● £22.99/ $34.99 US

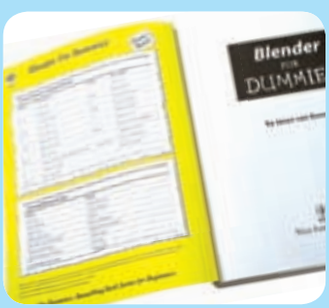
PUBLISHER
● Wiley

ISBN NUMBER
● 978-0-470-400-18-0

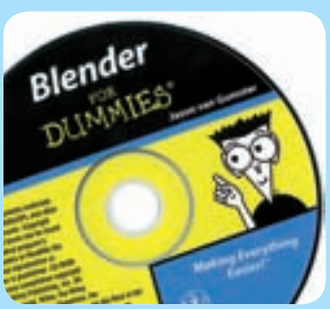
Wiley's For Dummies imprint is an iconic, if somewhat ridiculed, one. Its striking yellow-and-black livery stands out by a mile on any bookshelf and, despite the deliberately dumbed-down branding, the For Dummies imprint always delivers. Whether it's a simple or a complex subject, these books manage to break it down into manageable and crucially memorable chunks, set out in clear, logical terms and with a definite and achievable progression through each chapter. This is particularly important when it comes to open source software like Blender. Rather than being developed especially for consumers by programmers with a specific goal and demographic in mind, open source projects are created as labours of love, by coders, for coders.

It's for this reason alone that you should put all notions of snobbery aside when looking at *Blender For Dummies*. Blender's complexity is on the same level as its imaging prowess, and it's likely that despite the friendliness of its open source community, any form of tech support will consist of hurling a random and probably prime number of acronyms at you along with some esoteric command line prompts. This handy guide takes you through a process that literally starts with getting your head around the software (you'll see), moves you through the processes of 3D modelling, animation, rendering and exporting, and finishes up with your own creativity.

Along the way, it takes in eminently useful subjects, such as the most common problems you'll face with the program, the best resources you can find on the web (at the time of publication, anyway) and other thorny little issues that more high-end tomes would perhaps gloss over. What's even better is that it does this without oversimplification or patronising the reader. Written by Blender artist and open source evangelist Jason van Gumster, this book takes the fiendishly obtuse Blender interface and actually tells you what it does in transparent and realistic terms. This is particularly useful for newcomers to 3D graphics, drawn in by the fact that Blender's free and then baffled utterly by its unique nuances. For these users in particular, this book is invaluable and working through it can yield tangible and satisfying results.



HOT KEYS AND SHORTCUTS
In traditional For Dummies style, the book opens with an eminently useful list of keyboard shortcuts and hot keys. For a program like Blender, this is very handy



FULL PROGRAM INCLUDED
To save you negotiating the complex path of SourceForge binaries, the most up-to-date version of Blender (at the time of publication) is included on a free CD-ROM

CLEAR LAYOUT
Blender For Dummies breaks down the process of working with the program into manageable chunks, and includes frequently asked questions at every major step

QUICK FIXES
Essential subjects are covered in a logical progression, but useful real-world tips, such as creating lighting that will render fast, are where *Blender For Dummies* really shines

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D'Artiste: Character Modelling 2

A showcase of 3D art from videogames, movies and more £54.49

Ballistic Publishing's glossy art books are always a joy to behold. The D'Artiste series in particular is one of this publisher's highlights, mixing the beautifully reproduced artwork we expect from Ballistic with interviews and tutorials from the featured artists.

In *D'Artiste: Character Modelling 2*, those artists are Kevin Lanning, Timur Baysal and Zack Petroc. Lanning was responsible for much of the primary artwork in the *Unreal 3* game engine, which powers many of today's PC games. Animator Timur 'Taron' Baysal's credits include cult smash *Dogma*, while Zack Petroc is behind many of the Gnomon Workshop's 3D tutorial DVDs. Between them, they provide a showcase of personal art and inspirational works by invited artists, along with step-by-step tutorials. For 3D artists, this is a great insight into working processes.

info

AUTHOR
● Zack Petroc, Kevin Lanning, Timur Baysal

PRICE
● £54.49

PUBLISHER
● Ballistic Publishing

ISBN NUMBER
● 1-921002-35-2

TOP 3D ARTISTS
Kevin Lanning is one of the people behind the almost ubiquitous *Unreal 3* engine, and his recent credits include Xbox 360 top seller *Gears of War*

3D TUTORIALS
Unlike other Ballistic books, the D'Artiste series includes tutorials, and those in *Character Modelling 2* are particularly relevant to 3D artists

INVITED ARTISTS
Each of the 3D artists in *Character Modelling 2* has picked a set of portfolio pieces from invited artists to showcase what can be achieved in 3D graphics

Exotique 4 £40.99

The fourth collection of the finest digital art eye candy

Here's another treat from Ballistic Publishing in the shape of *Exotique 4*. Where *D'Artiste: Character Modelling 2* provides some useful information and insights in its showcase of 3D graphics, *Exotique 4* is an exercise in pure digital eye candy.

This is the fourth in Ballistic's series of 'the world's most beautiful CG characters', and it encompasses artwork created in a variety of programs. From Photoshop, Painter, ArtRage and ZBrush to Maya, Poser, Bryce, mental ray and 3ds Max, this is a capsule collection of some of the finest digital portraiture out there. Photoshop, thanks to its sheer ubiquity, is overrepresented on these pages, but the artworks themselves are of stunning quality and really do represent some of the best character art in the world right now.

Despite its rough chapter headings, this is an aimless albeit gorgeous collection, but it's sure to find a home on the coffee table if not the bookshelf.

info

AUTHOR
● Daniel Wade, Paul Hellard

PRICE
● £40.99

PUBLISHER
● Ballistic Publishing

ISBN NUMBER
● 978-1-921002-54-0

THE FINEST DIGITAL ART
Ballistic books always provide a showcase of some of the world's finest digital art

CG CHARACTERS
Like the rest in the series, most of the characters portrayed in *Exotique 4* are fantasy females, although there are a few monsters, robots and scary people

3D SECTION
A section of 3D artwork breaks up the monotony of scantily clad ladies and adds some variety to the pages, but it isn't exactly well ordered

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Learn in style

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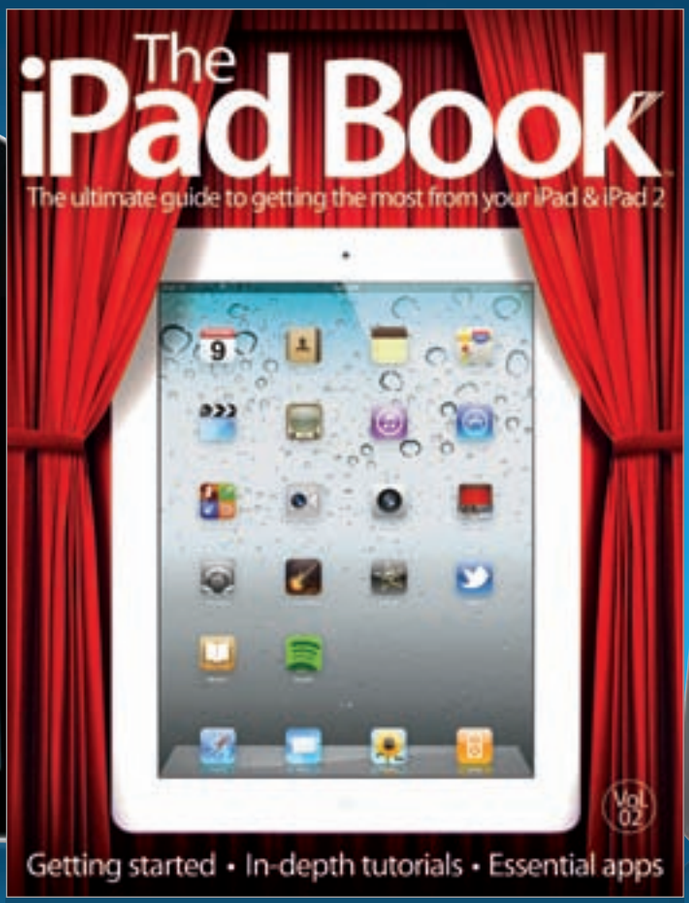
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Inside guide to industry news, studios, expert opinion and education

100 Insider interview

Leo Santos

We ask a leading industry light what you need to do to get into the business and get a job like theirs. This issue, it's Leo Santos, lead animator at Blur Studio in California

094 News

Industry news

Make sure you are up to date with the latest shows, tools and products in the 3D biz

096 Behind the scenes

SPLine Games

Take one basement full of feverishly busy Russians and you have the recipe for a small developer taking on the world with a new point-and-click adventure

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Hertfordshire

Want to get in on some learning? Head to Hertfordshire University for an animation course. Rosie Tanner discovers what it has to offer

"The more crazy stuff you create, the more breathtaking your game is"

Boris Chuplin allows 3D Artist a look at what's on the horizon from SPLine Games. **Page 96**

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Alexey Kuznetsov «
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> "A fully immersive three-dimensional movie-going experience"
>
> Director of *The Nightmare Before Christmas*, **Henry Selick** promises a great deal from his latest film, *Coraline*

A

B

Coraline director to give keynote speech

Henry Selick will share his thoughts at the NAB show in Las Vegas

Henry Selick, director and producer of the acclaimed 3D stop-motion animated film *Coraline*, will keynote at the annual NAB Show in April. The NAB (National Association of Broadcasters) Show is the world's largest electronic media show, taking place in Las Vegas from 20 April to 23 April (with the conferences starting two days earlier). Selick will be delivering his thoughts on the Monday afternoon on how digital technology has helped to revitalise the handcrafted approach of stop-motion animation.

Coraline, the first-ever completely stereoscopic 3D feature film was released in the United States to much admiration and a solid box office performance in February, with high hopes of a similar reception when it hits UK shores in May. Selick is well known as a director for his debut feature film The Nightmare Before Christmas in 1993, and went on to create James and the Giant Peach in 1996, combining stop-motion animation with computer graphics. He joined animation studio LAIKA in 2004, which is behind Coraline, written by international bestselling fantasy writer Neil Gaiman.

Other key speakers at the NAB Show this year include Rob Cohen, director of XXX and The Fast And The Furious, David Eick, co-creator and executive producer on Battlestar Galactica and Bud Alders, CTO of Disney Interactive Media Group.

The show floor at NAB 2008

A Henry Selick will be talking about stop-motion animation in the afternoon of the first day of the NAB Show in Las Vegas

B Content Theater: *Horton Hears A Who!* directors Jimmy Hayward and Steve Martino discuss the making and production of the animated film. Moderated by David Cohen, associate featured editor, *Daily Variety*

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Visual Effects Society unveils first student winners

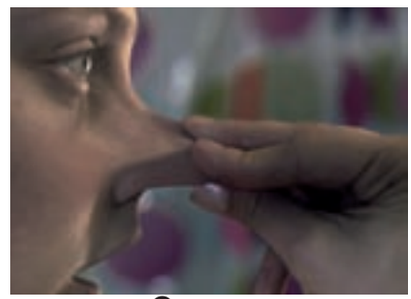
Autodesk representative presents Sandy Widyanata and Courtney Wise with its coveted award

The Visual Effects Society Awards are among the biggest in the industry, and this year it presented its first-ever student accolade. Sponsored by Autodesk and designed to honour outstanding achievements in visual effects, the VES invited qualified students from around the world to send in submissions at the end of last year. The winners were announced during the seventh annual VES Awards show in Beverly Hills.

Sandy Widyanata and Courtney Wise are the first recipients of the Outstanding Effects In A Student Project prize for their short film PLASTIC, a graduation project created while studying at the Australian Film, Television and Radio School. PLASTIC is a live-action film about the obsession for a perfect body image and was developed using Autodesk's Maya, among other technologies. The duo beat off worldwide competition from three other nominees from the US, France and Germany.

"This award is a wonderful opportunity for us to inspire the next generation of design professionals," says Joe Astroth, Autodesk vice president of Learning and Education. "As visual effects become more technically complex, the need for well-trained talent in the entertainment industry continues to grow. We're very proud to partner with prestigious internationalorganisationslikeTheVisual Effects Society to encourage students to hone their digital technology skills and prepare for exciting careers."

C



D

> "A wonderful opportunity for us to inspire the next generation of design professionals"

C Sandy Widyanata and Courtney wise step up to the podium at the VES Awards to receive their Autodesk prize for Outstanding Effects In A Student Project for their short film, PLASTIC

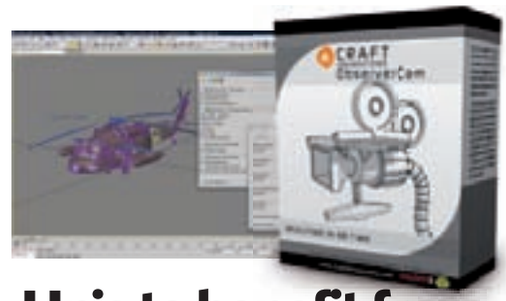
D PLASTIC is a film about the obsession with body image and uses visual effects to help tell the story. Maya was primarily used to help integrate the effects into the film

Camera Tracking For VFX course

Escape announces 'groundbreaking online learning format'

Escape Studios, provider of training and reseller support services, has announced a new online course to help teach professional camera-tracking techniques as required by aspiring 3D artists. The course looks at the art of mixing computer-generated objects into real-life footage.

"Camera tracking, also called match moving, is one of the most important and fundamental techniques for 3D artists to master," says Dominic Davenport, CEO and founder of Escape Studios. "Our Camera Tracking For VFX course has been meticulously planned to provide students with a thorough professional grounding in the theory and techniques required for seamless camera moves." Priced at $299/£199, you can find out more about the course or register at www.escapestudios.com/en_GB/training/online-courses/online-camera-tracking-vfx-course.html.



Unis to benefit from Craft partnership

Animation tech developer announces Academic Partner Program

Craft Animations has announced its new Academic Partner Program, which will enable colleges, universities and 3D animation schools subsidised access to its Director Tools. The program enables qualifying colleges and universities to receive free licenses for Craft Director Tools, early access to select upcoming technology and technical and supervisory support for select academic projects. The aim of the program is to provide the opportunity for students to stay ahead of new technology and techniques.

Educational institutions wishing to enrol should contact Lou Badju (lou.badju@craftanimations.com). See www.craftanimations.com for more information.

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Studio Access

A Stroke of Fate

Jon Denton talks to Boris Chuplin, project manager and lead artist for SPLine Games

SPLine Games is a small developer in Moscow

www.spline-games.com

Project *A Stroke of Fate*

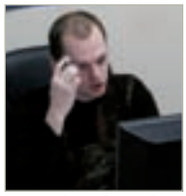
Description A PC point-and-click adventure game, set in Nazi Germany during the Second World War, due for a spring release worldwide

Country Russia

Publisher Akeller in Eastern Europe, Ubisoft worldwide

Software used 3ds Max, Maya, V-Ray

Key people



Boris Chuplin
Project manager and lead artist

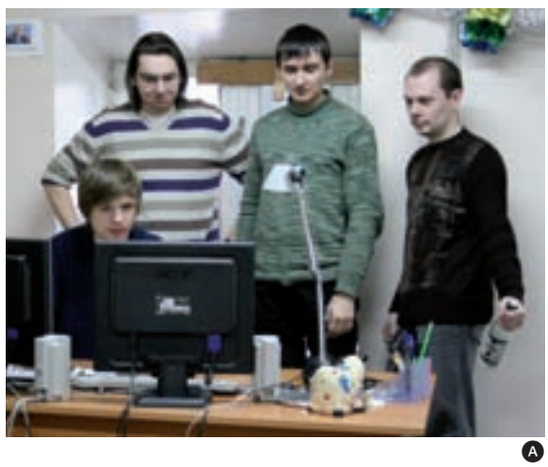
Sergey Balistov
Game concept artist and producer

Olga Zhukova
Artist

Deep within the frigid Steppes, a small team of Russian programmers and artists are busy reimagining the closing days of the Third Reich. This isn't *Castle Wolfenstein*, though, since Telltale Games and its *Sam & Max* revamp brought the point-and-click adventure back from the dead. There's one keen difference between the two – the adventure is now in three dimensions. But can 3D visuals communicate the character and subtlety necessary to tell a great story? Boris Chuplin of SPLine Games certainly thinks so.

"*A Stroke of Fate* is a classic point-and-click adventure game. The German patriot Gerhard Mayer can't see any way to stop the Second World War other than killing Adolf Hitler," Chuplin tells us. Not exactly *Monkey Island*, we're sure you'll agree. Such subject matter is pretty in vogue at the moment too, with Tom Cruise's *Valkyrie* tearing up the box office charts. So what sort of tech has SPLine Games used to help communicate this potentially fascinating story?

"For this project we've used the WME engine. There are no big graphics features, like normal mapping, advanced lighting, HDR, real-time SSS and so forth," Chuplin passionately explains. "This engine is more script-orientated for better and quicker scripting. Our game is not just fun but kind of an encyclopedia of the Third Reich. It means that we are focused on very detailed and historically accurate graphics."



A

The SPLine team is pretty small – just five people – so how many people does Boris think you need to get a small project off the ground? "One at least. They can create a genius Flash game, although two people can easily do an adventure game using a free source engine. All they need is some to make the graphics and have the motivation."

How were the background graphics in *Fate* created? "The 2D background is a rendered image, which was done in 3ds Max, and sometimes Maya. But Max is more suitable for this, because of V-Ray. The V-Ray rendering engine has pretuned materials and very good standard lighting settings for interiors. So 90 per cent of backgrounds were made in Max."

For any bedroom coder and graphics artist combos, though, what software do they need? Boris doesn't think they need to break the bank: "I think all they really need is Photoshop or an affordable alternative.

Portfolio highlights

With typical Russian secrecy, SPLine can only own up to working on *PT Boats: Knights of the Sea*

2009 A Stroke of Fate
2008 PT Boats: Knights of the Sea

A Standing up, from left to right: Roman Vlasov (scenery writer), Maxim Budzavin (scripter) and Boris Chuplin (project manager). Sitting down at the computer is programmer Stas Ponomarenko, who bears a striking resemblance to Russia and Arsenal's star footballer, Andrei Arshavin...

B Boris collected historical photos, newsreels, paintings and newspapers for two years to collect all the source material for the main historical figures in the action so that they could be rendered with some accuracy, even on low-polygon models

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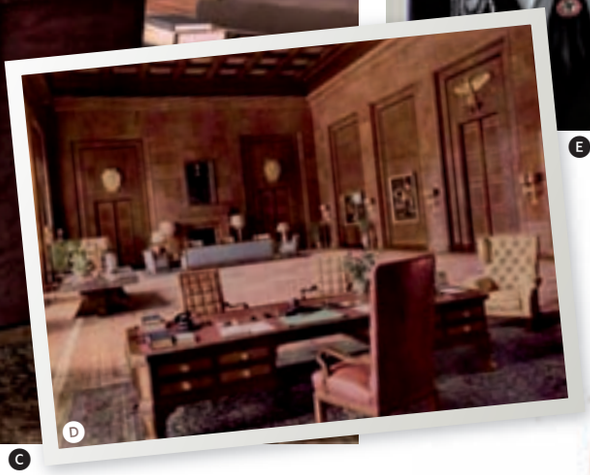

“The more crazy stuff you create, the more breathtaking your game is”

To create 3D graphics without paying much, there’s the free Blender program that could be used as well.”

With a game set in a real-world locale, or a simulacrum of one anyway, rendering recognisable touchstones is vital, regardless of which program a team chooses to use. Chuplin doesn’t hesitate to agree: “There are two sides to this coin,” he elaborates, in slightly broken English. “In fantasy worlds, you have no ‘good’ references. You need to create everything new by combining items and images from real world. The more crazy stuff you create, the more breathtaking your game is. The other side of the coin is the photorealistic, historically accurate world. Our purpose was to re-create the atmosphere of the Third Reich.”

Aside from the obvious moral ambiguity of trying to re-create the Third Reich, Chuplin and his team

C Most of the backgrounds were rendered in 3ds Max thanks to the power of the V-Ray rendering engine. This shot of Hitler’s office is uncannily accurate in terms of colour and content. The only changes made were to facilitate things in the gameplay

D The inset image is a photo of the actual room so you can see how close it is to the rendered version. For fledgling games developers, there are freeware alternatives to major software apps – GIMP for Photoshop and Blender for the 3D graphics creation

E As well as being an unpleasant weasel in charge of the SS, Goebbels appears in very few historical photos relative to the other main players in the Third Reich. That, and his distinct shortness caused the team some difficulties

F One of the many concept sketches that the artists drew in preparation for creating the characters that populate the 3D environments. Remember, all you need to get going yourself are one person to use a freeware engine and another to do the graphics

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G

> There was no problem rendering the Führer. We've got many photos of him from any side and any age. The Führer was not a pain in the arse for us

I

H

G Another of the precisely modelled backgrounds that forms the scenes in which the player's character will wander in search of achieving the main aim of the game – to kill Hitler. Just like the film *Valkyrie*, in fact, but without good old Tom Cruise

H Although these shots are combinations of the wireframe and the rendered model, they show the detail that can be created, even on low-polygon models that are required for in-game play. The outfits are all historically accurate, too

I While Adolf looks like he has been prodded with a broomstick in this image, the team at SPLine Games had little trouble finding resources for the little corporal, as Hitler is one of the most photographed figures of the Twentieth Century. The characters needed lip-syncing as well

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ran into problems just trying to do justice to the source material: "The first problem is trying to find actual references. Most of them are really low quality," he explains. "The second is in re-creating really accurate items. We've got more than 100 backgrounds, though, from over 40GB of pictures dedicated to WWII on my hard disk.

"There's no doubt, that for best results, references are the key! We read a lot of memoirs of the people who lived in that time. We've examined thousands of photos of the Third Reich. We've watched many hours of old newsreels, too. After that, we basically got the vision how the setting of the game should look. If you want to create your own games, research is definitely the key."

Of course, at this point, there's only one question on our lips. Just how does one go about rendering the Führer himself? Thankfully, not in *Wolfenstein*-esque robot vision, as Chuplin happily divulges: "There is no problem rendering the Führer. We've got many photos of him from any side and any age. The Führer was not a pain in the arse for us," he laughs. "Goebbels, he was the problem. First of all, there are no really good photos of him. The second problem is that Goebbels was very short; he was 154cm tall. So it's really fun to see him as a two-metre tall soldier."

Laughing at the Third Reich aside, there's a serious point here in how an art team must render their game characters, not only so they look believable in static shots, but so that they move and behave in a way that looks right to casual observers and helps drag players into the story: "Mostly, our characters open with dialogue. They show their soul by talking about the world's situation, their attitude to world leaders, the events in their life and so on," he tells us, before getting to the real meat of the matter.

"What about modelling, you ask? We divided our characters into three groups, starting with the famous ones of Hitler, Himmler, Goebbels, Muller and Eva Braun. All of them were made by using photos. The common characters, soldiers, officers and civilians, their faces were made by combining features of regular people from the time.

"But for the main characters, those that carry a big role in the game and are in contact with the player all through the game, well, we drew sketches for them. After three to ten days of sketching, we were happy with the results and began to model them in Maya. All the characters were made and modelled in Maya."

Chuplin and SPLine have achieved a great deal on a modest budget, and *A Stroke Of Fate* has the potential to make waves in the resurgent point-and-click genre. It's clearly a subject that Chuplin is passionate about: "The future of adventures is movies where the viewer controls and becomes the hero." Well, if Tom Cruise eases up on his likeness rights, it may be sooner than we think.

J There's a big jump between what can be achieved on low-poly game models compared to the backgrounds that can be rendered as photorealistic, thanks to both the extra resolution and 3ds Max's excellent V-Ray rendering engine, which the team used to the full

K This is a composite to show that the scene is, in fact, CGI and not a photograph. The wireframe is relatively simple since the scene is largely made of oblong shapes, but it is the texturing and lighting used here that makes it look so realistic

L Here's the completed render of the underground scene. As well as research photos of the actual places that the team were re-creating, they also referred to countless ordinary photos of life in the Third Reich for objects

M The unassuming outside of the entrance to the Führer Bunker could easily pass as a photograph, although the lighting on the abandoned crates hasn't been finalised in this pass so they are too light

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Interview

Industry insider
Leo Santos
Animation and layout supervisor, Blur Studio

Each issue, 3D Artist finds out how the top people in the 3D industry got their jobs and what you need to know to get a foot in the door

About the insider

Job Animation supervisor, Blur Studios

Education Universidade Federal do Rio de Janeiro

Company website www.blur.com

Personal portfolio site www.leosantos.com

Biography Born in Brazil, son of a writer and a teacher, raised in beautiful Rio de Janeiro and currently living in sunny Santa Monica, California. Since he was a child, he was fascinated with films, animation, comic books and videogames, so it's natural that he ended up working with them

Leo Santos is an animation and layout supervisor at Blur Studio in Venice, California. His current job is directing a campaign of 10 commercials for Pepperidge Farm's Goldfish Crackers. He has worked on theme park ride animations, CGI animation in adverts and game cinematics. Santos is also doing a new short film whenever the Blur people find time to work on it.

3D Artist: *What kind of course did you do at university, and was that helpful in getting into the animation industry?*
Leo Santos: Animation schools weren't as popular and common as they are now when I went to university, so first I went to a film school but then switched to a Graphic Design course. I always shaped my studies towards animation, though, so I ended up landing an animation-related job before I finished school. It was at a small company in Rio de Janeiro that did mostly 2D animation and had some amazingly talented artists who inspired me tremendously. At the same time, I made many friends at university who shared the same interest in animation, which also helped me to build some momentum and made me more confident in the direction I wanted to follow.

3DA: *For today's generation of students, what is the kind of educational grounding they should be looking to undertake to get a first job in the field of computer animation?*
LS: This has become some sort of cliché, but it is still true: they need to learn the basics. They need to learn timing, acting, staging... they need to branch out and watch films they would never have watched before, read books that stimulate new ideas, study drawing, comics, videogames, even TV. They need to know what makes a work of art timeless, but also what makes it work for today's audiences.

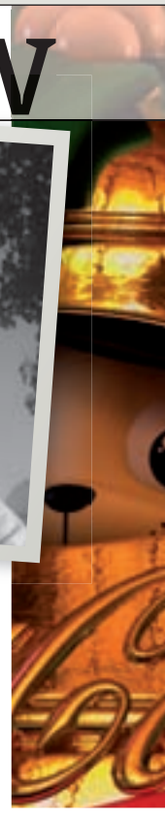
This shot of *Opus*, below, was a little test animation for an abandoned feature film project

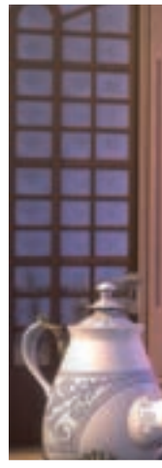
3DA: *How did you get it and what was the motivation for getting a job at Blur Studio?*
LS: Actually, I wasn't looking for a job at the time, but a website posted a link to my demo reel and Tim Miller, one of the studio owners, happened to be looking for animators for an upcoming direct-to-DVD project that Blur was making for Disney. So he sent me an email asking if I wanted to work there, and I said 'Sure!'

3DA: *What software packages and tools do you use at Blur?*
LS: Mostly 3ds Max for layout, modelling and rendering, Softimage for rigging, layout and animation, and Mudbox and ZBrush for sculpting. We've also developed many pipeline tools that hold the whole studio together, with Python as the scripting language of choice.

3DA: *Is there a shortage of new CG animators, or are you wading through them from the car park to the front office?*
LS: Tim does most of the work going through the pile of reels that we always receive. There's quite a lot of people coming out of animation schools nowadays, so I wouldn't say there's a shortage.

3DA: *What are the key skills required to work in today's computer animation industry?*
LS: Knowing your craft well. From a supervising perspective, I'd say the best animators tend to be the ones that need less baby-sitting, the ones you can talk about the scenes in broad terms and they will know the necessary techniques to accomplish what you want. I want to say 'the spacing here is too even'



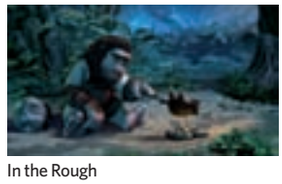


Portfolio highlights

Leo Santos has worked on many projects to date, including the ones on this recent timeline

2008 The Simpsons Ride
2008 Niagara's Fury
2007 Transformers: The Game
2007 A Gentleman's Duel
2006 Coca Cola
2006 Sonic the Hedgehog
2006 Warhammer online
2006 Shadow – The Hedgehog
2004 In the Rough

A Gentleman's Duel



In the Rough

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A Gentlemen's Duel This was one of our short films – it was a lot of fun to animate!

> "You need to know the basics well, and you need to know what those basics are"

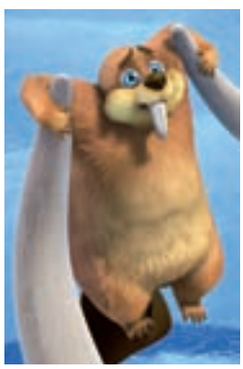
Ⓐ

or 'the weight is in the wrong place' and have the animator understand exactly what's wrong without me trying to teach him what these terms mean. Sometimes it's difficult to look at your shots and see where the problems are, so the supervisor will be there to point those out for you, but he can't make the animation for you. You need to know how to deal with those issues. You need to know the basics well, and you need to know what those basics are. Having a good and fast workflow also helps a lot. Some animators can get their ideas on the screen in a quick and clean fashion without wasting unnecessary time on things that do not matter. That's extremely helpful, especially when you are under the pressure of a tight deadline.

3DA: *Professionally, what's the most satisfying project you've worked on and why?*

LS: That's a difficult one. I started at Blur as an animator and layout artist and eventually began to supervise projects, but I don't think I was entirely ready to supervise because I quickly realised it required a different set of skills I didn't necessarily have. So with each project I learned to do it better, and it was rewarding even if the end result wasn't, for one reason or another, as satisfactory as I wanted. Looking at it that way, I tend to like the more recent projects, because I felt like I was doing a better job at them. It's hard for me to look at those things with an objective eye.

3DA: *What would be your dream project to work on?*
LS: That's easy – a feature film! Longer deadlines, full creative control, more visibility – who wouldn't want that? We have a little taste of what that means when we do our shorts, but that's still being paid out of Blur's pockets without any direct return, so it's still done under more pressure and budget constraints than a feature film would be.



Niagara's Fury Character animation created for a ride at Niagara Falls, Canada

Ⓐ This was a quick commercial for a Coca Cola campaign. Santos has applied his skills across a variety of mediums, including short films, storyboards, special effects, television commercials, computer games and even music videos

> "I don't think I was entirely ready to supervise because I quickly realised it required a different set of skills"

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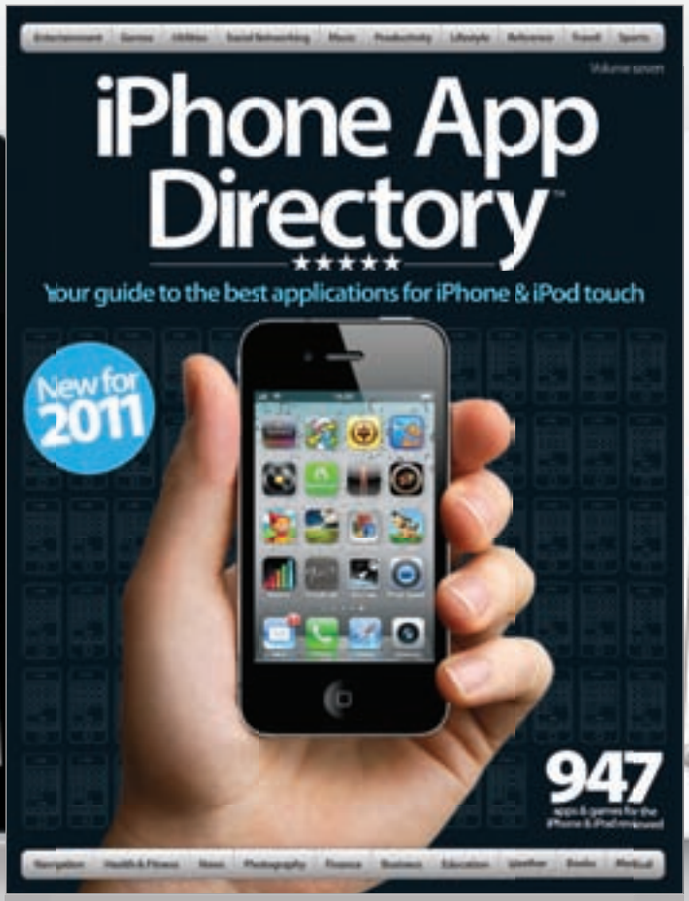
It's a jungle out there. Swing through it

iPad



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The best course and freshest talent from universities around the globe...

Hertfordshire University

BA (Hons) 3D Digital Animation

If you're serious about making money from your 3D passion, then the 3D Digital Animation degree course at Hertfordshire University is for you. Located in the east of England, this Home Counties university is bordered by Greater London, Buckinghamshire, Essex, Bedfordshire and Cambridgeshire.

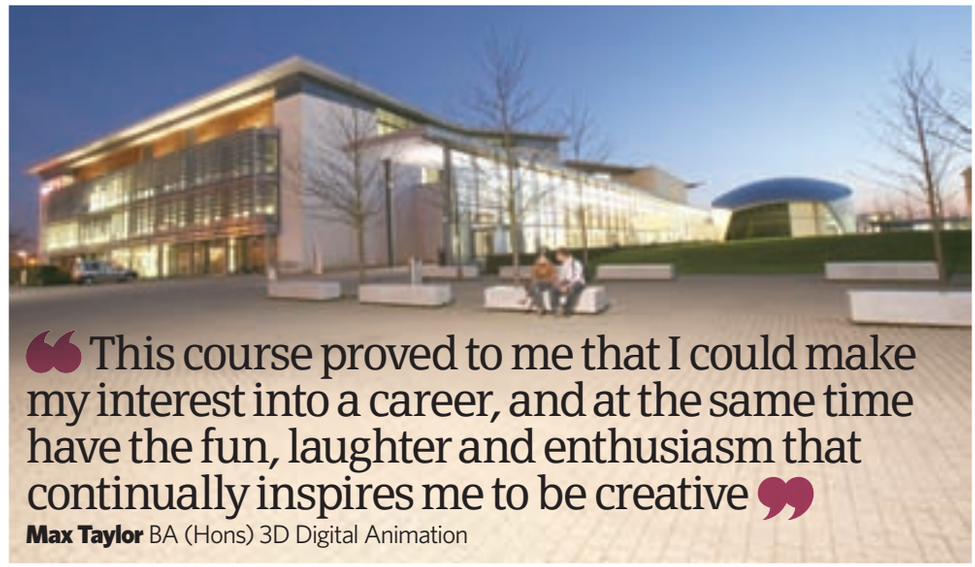
The three-year curriculum equips you with all the skills you need to forge a career for yourself in 3D animation. With a focus on creativity, you will find yourself immersed in 3D character design, storyboarding, cinematography, SFX and compositing. Build and refine your digital modelling skills, then bring your creations to life thanks to professional training in character animation. Key skills such as virtual lighting and camera work are covered in depth to help you create professional, finished animations, which will stand you in good stead for a future career.

To give you the best start in the industry, the course also teaches you about the practical aspects of buying and commissioning music, sound effects and voiceover actors to help create a complete animated product.

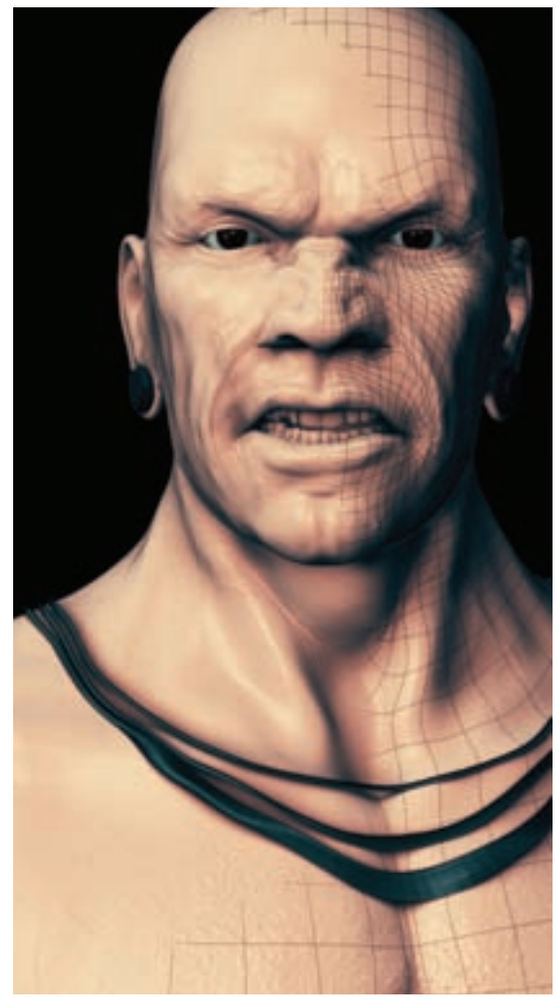
Year one kicks off with intensive software training and animation techniques. You will share much of your study with 3D Games Art students and have the option to switch to this course at the end of this year if you wish. As you progress to year two, you will really get involved in the world of 3D animation, as you get to grips with post-production techniques to help you achieve the best 3D SFX. Special emphasis is placed on the most up-to-date 3D CGI practices used in modern cinematography and animation. Your final year really prepares you for employment and sees you producing a complete short film project right from pre-production through to post-production. You are also taught to create a showreel and professional website to enable you to have the very best start in your career.

During your studies, you are encouraged to actively seek and complete work placements within the industry. This is not compulsory, but strongly recommended to give you the very best chance for future employment. A strong team of support staff is on hand to advise and recommend possible work placements.

This course is also available as a postgraduate Masters for those who already have a relevant degree or have suitable professional background.



> "This course proved to me that I could make my interest into a career, and at the same time have the fun, laughter and enthusiasm that continually inspires me to be creative"
>
> **Max Taylor** BA (Hons) 3D Digital Animation



Hunter
Chris Andrews «
Time taken: Four days
ZBrush and Fusion
Hunter was a character piece by Chris Andrews in 2008. It took four days to produce, using ZBrush for modelling and animation and Fusion for compositing.

Course details

Tel +44 (0)1707 284800
Web http://.uhanimation.co.uk/
www.herts.ac.uk

Duration Three years

Fees £3,225 (although bursaries available)

ENTRY REQUIREMENTS
240 points from GCE A Levels (or equivalent Art qualifications plus GCSE English grade C)
Portfolio required for interview

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Uni focus

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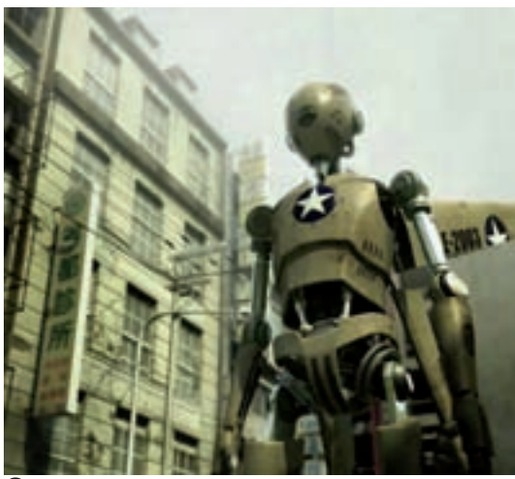

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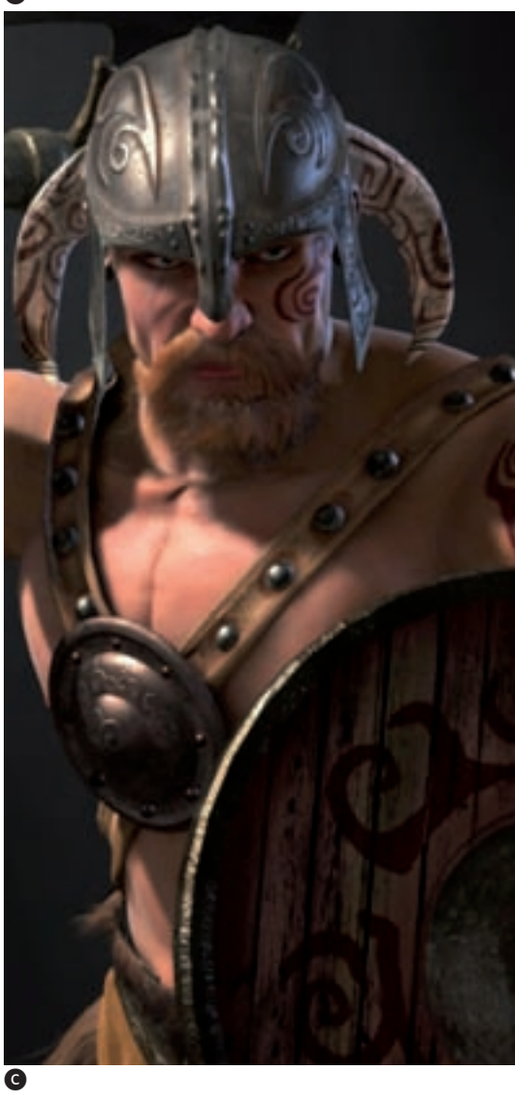

C

A A Tale of Rock
» **Stephen Payne and Jon Godwin**
Time taken: Five months
3ds Max and After Effects
A Tale of Rock was a short film produced in 2007 by Stephen Payne and Jon Godwin. It took five months to produce, using 3ds Max for modelling and animation and After Effects for compositing. It has been nominated for five awards internationally, as well as winning the World Student Animation Award in 2007.

B World War
» **Vincent Chai**
Time taken: Five months
Maya and Fusion
World War was a short film produced in 2008 by Vincent Chai. Maya was used for modelling and animation and Fusion for compositing. It has been nominated for two awards, winning the Games Art Award at the 2009 Animex animation festival.

C Viking
» **Mathus Matharis**
Time taken: Eight days
3ds Max and ZBrush plus Fusion
Viking was a character piece by Mathus Matharis in 2006. 3ds Max and ZBrush were used for modelling and animation and Fusion for compositing.

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D Powerless

» **James Pavitt, Matthew Gally and Satwinder Dahaliwal**

Time taken: In production

3ds Max and Fusion

Powerless is a short film currently in production by James Pavitt, Matthew Gally and Satwinder Dahaliwal, using 3ds Max for modelling and animation and Fusion for compositing. It will see its premiere at the University of Hertfordshire's Animation Exposé on 2 June.

E Climap

» **David Rolfe, Ben Purkis and Sophie Wood**

Time taken: Three months

3ds Max

Climap was a short film produced in 2008 by David Rolfe, Ben Purkis and Sophie Wood. It used 3ds Max for modelling and animation.

F Touring Car

» **Simon Reeves**

Time taken: Four days

3ds Max

Touring Car was a visualisation piece by Simon Reeves in 2004. It took four days to produce, and used 3ds Max for modelling and animation.

Course details

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Duration Three years

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> The first and the second year consisted of an in-depth study of the art of animation and how to convey emotion into the digital characters that we were making
>
> **Max Taylor** BA (Hons) 3D Digital Animation

G Recluse
» **Chris Andrews, Sophia Avgusti and Nile Hylton**
Time taken: Five months
Maya, XSI, Flame and Nuke
Recluse was a short VFX film produced in 2008 by Chris Andrews, Sophia Avgusti and Nile Hylton. It took five months to produce, while Maya and XSI were used for modelling and animation and Flame and Nuke were used for compositing.

H Hit!
» **Xi Gong**
Time taken: Five months
3ds Max and Fusion
Hit! was a short film produced in 2008 by Xi Gong. It took five months to produce, using 3ds Max for modelling and animation and Fusion for compositing. It has been nominated for two awards internationally. To see this film, **http://visit uhanimation.co.uk/**.

I Daf
» **Matthew Allen**
Time taken: Five days
3ds Max and Fusion
Daf was a visualisation piece by Matthew Allen in 2007. It took five days to produce, using 3ds Max for modelling and animation and Fusion for compositing.

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J Veni Vidi Vici
» **Will Burdett and David Bryan**
Time taken: Five months
3ds Max and Fusion
Veni Vidi Vici was a short film produced in 2008 by Will Burdett and David Bryan. It took five months to produce, using 3ds Max for modelling and animation as well as Fusion for compositing. It has been used for ATI FireGL's international advertising campaign across the world.

Course details

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